WHOLESALER'S SALESMAN

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From .....

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To .....

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Signed .....

Certified
FLEUR-O-LIER
The Manufacturer guarantees by affixing this label that this Fluorescent Luminaire is a duplicate of samples found by periodic examination to comply with the minimum requirements as set up in the
"SPECIFICATIONS FOR LUMINAIRES, FITTINGS AND AUXILIARIES FOR FLUORESCENT LAMPS"
which are sponsored by the Manufacturers of Mazda Lamps
ELECTRICAL TESTING LABORATORIES
NEW YORK, N. Y.
E·T·L
A COPY OF THIS CERTIFICATE SHOULD APPEAR UPON EACH UNIT OR PACKAGE
E·T·L
FLUORESCENT LIGHTING FIXTURES EMPLOYING EXISTING TYPES OF LAMPS ARE NOT RECOMMENDED FOR SCHOOLS, OFFICES AND SIMILAR LOCATIONS UNLESS LAMPS ARE SHIELDED FROM DIRECT VIEW
THIS CERTIFICATION IS CONTINGENT UPON EMPLOYMENT OF CERTIFIED AUXILIARIES OF OVER 85% POWER FACTOR

For all Essential uses

. . . there's a FLEUR·O·LIER to give you dependable lighting!

The famous Certified FLEUR-O-LIER protection, dependability and service are now available for all essential uses.

Whether you have a busy war plant, drafting room, office or other war-essential location, FLEUR-O-LIERS can supply a *certified* fluorescent fixture suited to your need. (Priorities: at least A-1-j.)

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Industrial and commercial-type Certified FLEUR-O-LIERS are made in a wide variety of sizes and designs by many leading fixture manufacturers. And all have been tested, checked and Certified by Electrical Testing Laboratories, Inc. of New York as meeting 50 definite standards for electrical, mechanical and lighting excellence.

Better Than Ever!

FLEUR-O-LIERS combine not only the best features of prewar equipment, but improvements developed to help the war effort. And, of course, all FLEUR-O-LIER manufacturers conform to WPB limitation orders in the use of critical materials. Fleur-O-Lier Manufacturers, 2121-3 Keith Bldg., Cleveland, O.

EVERY FLEUR-O-LIER HAS CERTIFIED BALLASTS AND STARTERS

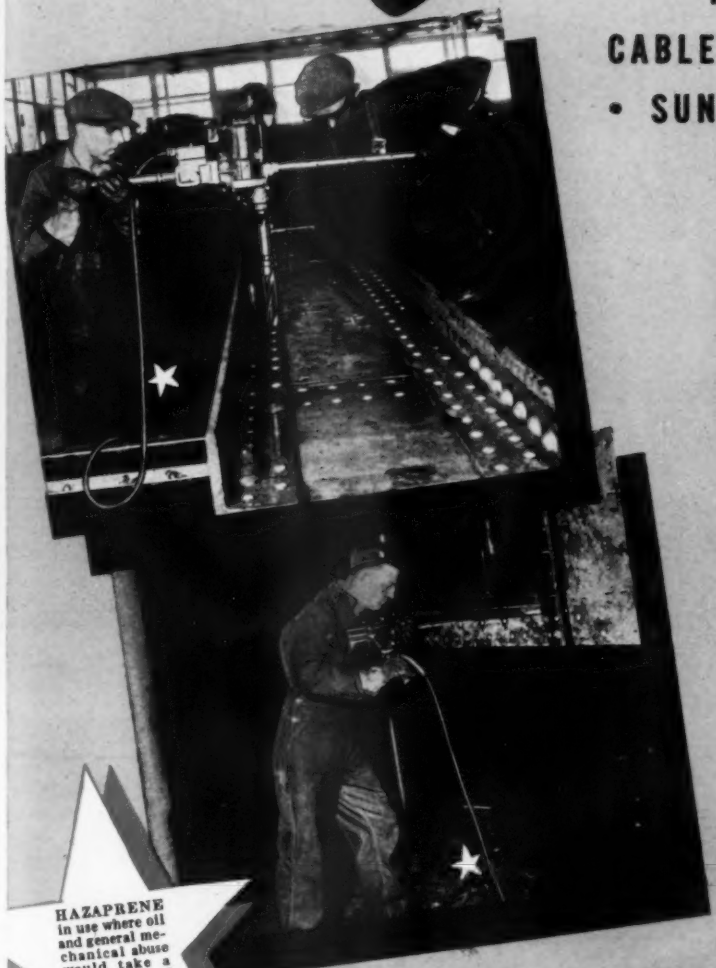
FLEUR-O-LIER

CERTIFIED FIXTURES FOR FLUORESCENT LIGHTING

Participation in the FLEUR-O-LIER MANUFACTURERS' program is open to any manufacturer who complies with FLEUR-O-LIER requirements

SPECIFY Hazaprene

FOR *Portable* CORDS AND CABLES THAT MUST RESIST: HEAT • SUNLIGHT • OIL • CHEMICALS



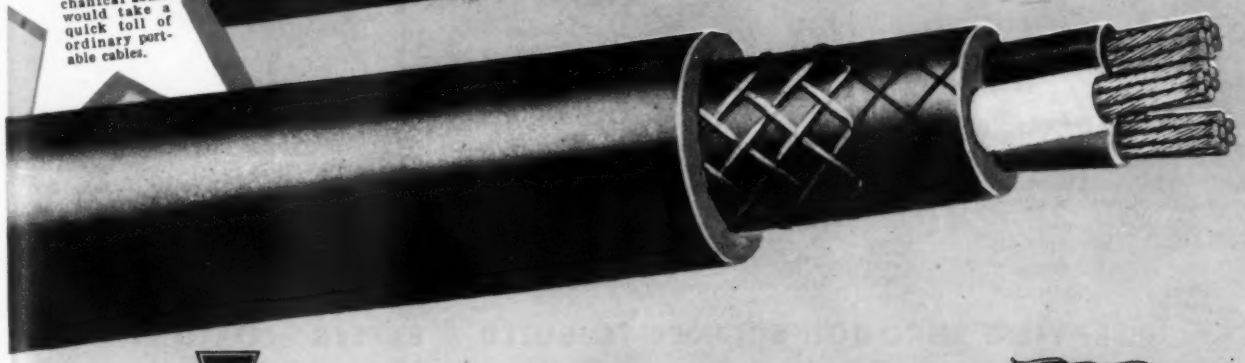
HAZAPRENE in use where oil and general mechanical abuse would take a quick toll of ordinary portable cables.

HAZAPRENE portable cords and cables have plenty of industrial applications. The outer jacket, compounded with neoprene — DuPont's well-known synthetic rubber, provides maximum protection against the hazards encountered in industrial plants.

These cables resist heat and can be used in locations subject to elevated temperatures. Sunlight, likewise, has no destructive effect. Unaffected by the solvent action of oil and grease, these cords will stand up under the lubricants or cutting oils which quickly attack rubber. Problems of corrosion due to acids, alkalies or other chemicals also can be overcome with HAZAPRENE. In addition, the toughness, flexibility and abrasion resistance of HAZAPRENE mean unexcelled ability to withstand severe mechanical abuse.

Specify HAZAPRENE for welding cords, portable tools, lamps and machinery, reel cables and portable power cables. Its all-round resistance reduces repairs, and extends service life far beyond that of ordinary cords.

HAZAPRENE is available in all standard sizes and constructions, subject to WPB limitations. Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pa.



HAZARD

ARMY E NAVY

INSULATED WIRES AND CABLES

3478

PIPE LINE TO VICTORY

Up ahead the cluster of houses where the enemy had holed in crumbled. You could see the rubble flying high in the air and before the dust had settled could see other shells hit the mark.

Hunkered down in a shell hole, the observer pressed his lips closer to his phone's mouthpiece. "On target," he said . . . and his words went back across the rough terrain to the battery . . . came through clearly, distinctly.

That's because Laytex Assault Wire . . . made expressly for front line service . . . has a talking distance of better than five miles. It is a positive means of assuring clear, sure transmission of messages from reconnaissance posts to headquarters.

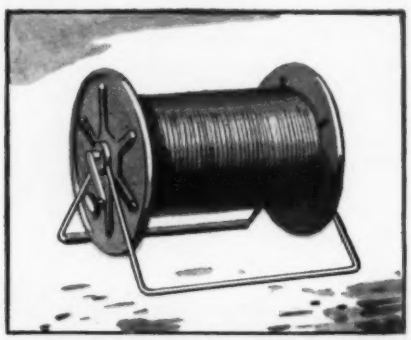
But talking distance is not the only advantage of Laytex Assault Wire. Its superior insulation makes possible its small diameter and light weight; a mile weighs less than 30 pounds. It has high resistance to moisture—can be unreeled over wet ground, through puddles and streams without affecting its efficiency. It is unaffected by temperature changes and does not become embrittled by concussion and shock

These same properties—light weight, small diameter, ability to withstand temperature changes, flexibility and toughness make other types of Laytex Wires and Cables as important in peacetime industry and building as to the Armed Forces.

Laytex **ASSAULT WIRE**

ON THE JOB IN ANY CLIMATE. Laytex Assault Wire was developed by United States Rubber Company scientists working in close cooperation with engineers of the Army Signal Corps.

LIGHT WEIGHT SAVES MANPOWER. One man carries enough wire to keep communications open. This is important—it not only releases men for other duties but also reduces the fatigue of men who are travelling hard and fast.



TALKING DISTANCE...OVER 5 MILES . . . Laytex Assault Wire assures clear, sure transmission of messages—a prime military requirement for battlefront communications.

Listen to the Philharmonic-Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 E.W.T. Carl Van Doren and a guest star present an interlude of historical significance.

SERVING THROUGH SCIENCE TO BUILD A BETTER WORLD

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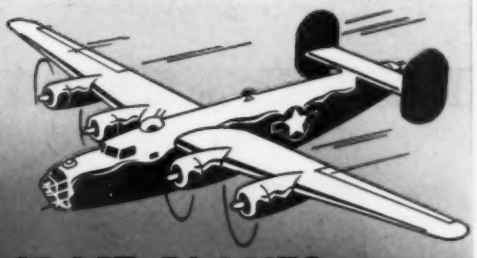
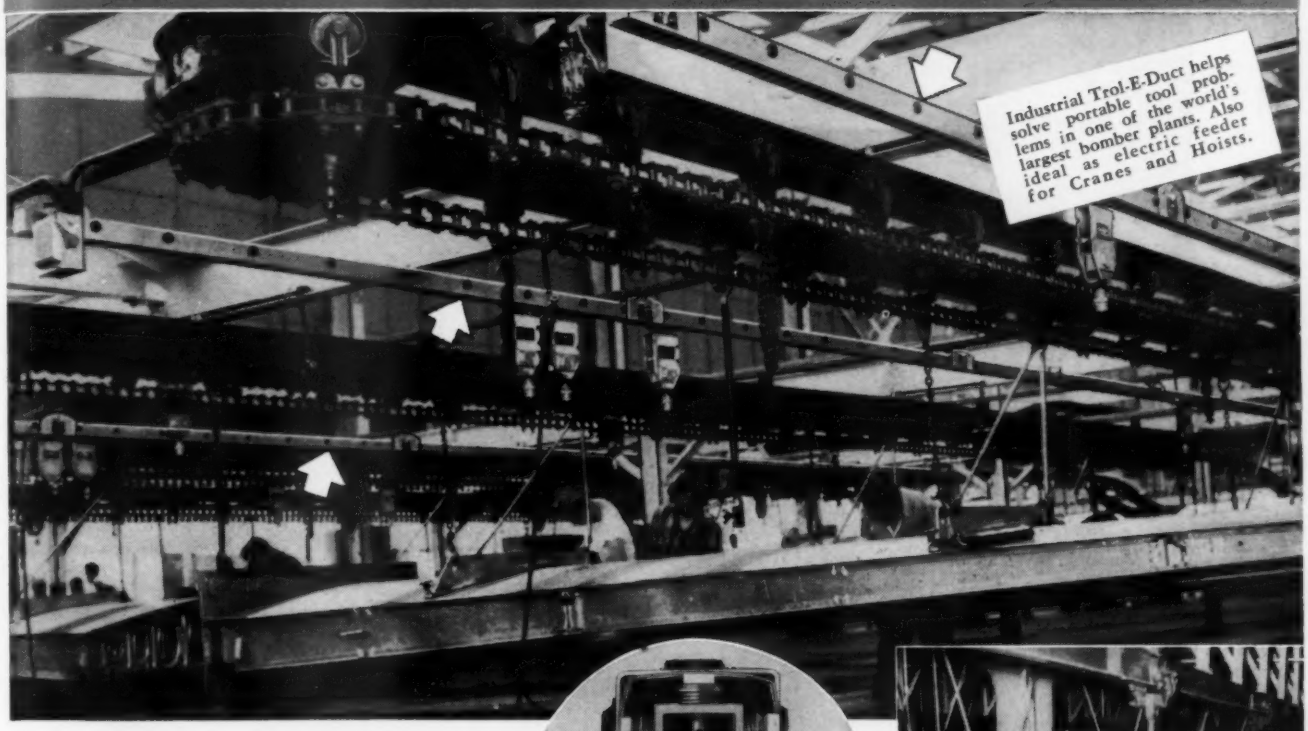
POWER FOLLOWS THE JOB

IN GREAT U. S. AIRCRAFT PLANTS





Industrial Trol-E-Duct helps solve portable tool problems in one of the world's largest bomber plants. Also ideal as electric feeder for Cranes and Hoists.

INDUSTRIAL TROL-E-DUCT BRINGS POWER CLOSE TO THE TOOL

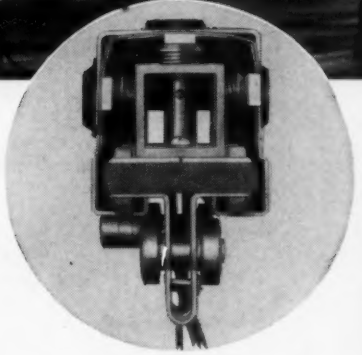
In these days of fast-moving production lines and frequent changeovers, war plants must have a *movable* source of power for portable tools.

Only Industrial Trol-E-Duct can fully meet this need. Here, the source of power moves right along with the tool and the tool moves right along with the work.

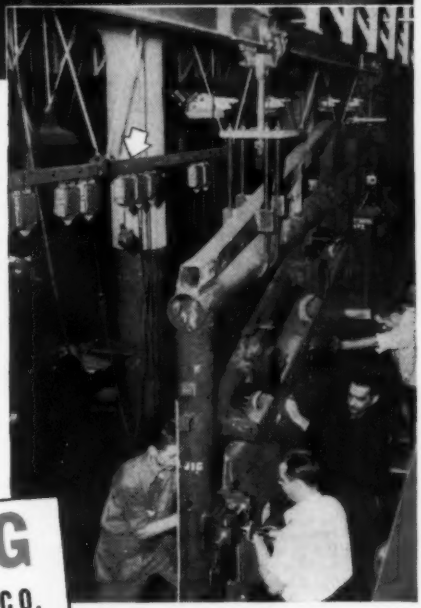
Gone are the hazards and interruptions caused by fixed plug-in points. With Industrial Trol-E-Duct, safety goes up, production time goes down and extensive savings are effected in wiring and other fixed equipment.

Because of its special enclosed design it is ideally adapted to crane and hoist applications in place of the dangerous open trolley wire.

Write for descriptive folder giving complete details.



BullDog's new "T" type sliding disc trolley conserves critical material without any sacrifice of operating effectiveness.



How power follows the tools in another big war plant building wings for combat planes.

BULLDOG

ELECTRIC PRODUCTS CO.

Box 177, R. Pk. Annex
Detroit 32, Michigan

BullDog Electric Products of Canada, Ltd., Toronto, Ontario

Field Engineering Offices in All Principal Cities

In addition to its three famous lines of Bus Duct, BUStribution DUCT *for "plug-in" power,* Universal Trol-E-Duct *for flexible lighting* and Industrial Trol-E-Duct *for movable "loads,"* BullDog Electric Products Company manufactures a wide line of other products for power distribution and control, including Vacu-Break Safety Switches, SafToFuse Panelboards, Circuit Master Breakers and Switchboards.

130,000 REASONS

From better See-ability for war work will come higher levels of lighting for everyone—greater efficiency for business and industry, better living for American homes. As soon as materials and manufacturing facilities are available, Westinghouse will lead the way in such lighting developments as: (1) Long thin fluorescent lamps in new shapes and sizes, for store display and feature lighting. (2) A brighter kitchen for lighter work—supplementary light for the sink, inside dark cupboards, over work surfaces. (3) Soft, comfortable fluorescent light in banks and offices for faster, more accurate work. For leadership in lighting, today and tomorrow—watch Westinghouse!

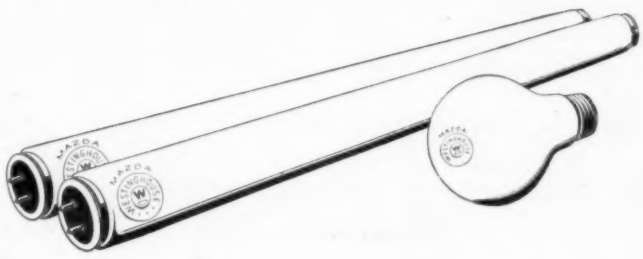
LET'S ALL KEEP BACKING THE ATTACK . . . BUY MORE WAR BONDS!

FOR SEE-ABILITY

Building today's *super-powerful aircraft engine calls for a high level of See-ability. For each giant 2200 horsepower motor made in this plant demands 80,000 machining operations and 50,000 inspections—130,000 vital seeing jobs where improper lighting could mean a serious, delaying error. See-ability—made possible by today's high-efficiency Westinghouse Mazda Lamps—enables workers to combine hairline accuracy with high speed operation, cuts down eye-strain and fatigue. For efficient, dependable service, recommend bright, long-lasting Westinghouse Mazda Lamps.*

Westinghouse Electric & Manufacturing Company, Bloomfield, New Jersey.

Plants in 25 cities . . . offices everywhere.



Westinghouse

MAZDA LAMPS FOR SEE-ABILITY

Enjoy the Westinghouse radio program with John Charles Thomas.
NBC—Sunday—2:30 p.m.—E.W.T.

"When, in the course of human events..."

At a time when war disrupts normal distribution and revolutionizes production, it is prudent for manufacturers and wholesalers in our field to formulate plans for postwar marketing activities.

Sylvania has done this and reaffirms its intention to look first to independent wholesalers for the best means of distributing new or improved postwar products for industry, commerce, and home.

This declaration is made with full confidence —

That free competition is the life of trade . . . and progress;

That only independent means of distribution preserves freedom of competition;

That there will always be a place at the top for independents who work together to provide an even higher standard of American living.

It Pays to Sell SYLVANIA

SYLVANIA ELECTRIC PRODUCTS INC.

EXECUTIVE OFFICES: 500 FIFTH AVENUE, NEW YORK 18, N. Y.

FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

CENTRAL
RIGID STEEL
CONDUIT

"There's Tested Strength in Every Length"

Protection-
for you and your customers

• When *you* use Central Rigid Steel Conduit—or incorporate it in your product—you are protecting both yourself and your customers. And because this high quality product serves so well, so economically—and for so many years, *you are protecting your own business future.* We believe that hundreds of manufacturers and electrical contractors will agree with that statement.

SPANG-CHALFANT

Division of National Supply Company

Executive Offices: Grant Building, Pittsburgh, Pa.

District Offices and Sales Representatives in Principal Cities

THE SCENE: Lighting Conference

THE VOTE: MILLER Fluorescent–Unanimous

Lighting meetings like this have happened many times in the past in many a busy war plant—will happen many more times during crucial 1944. Inevitably the vote goes, hands down, to MILLER 50 & 100 FOOT CANDLERS, and here's why . . .

PLANT MANAGER—"We still have stiff production quotas to meet—with greener help. MILLER 50 & 100 FOOT CANDLERS will give us 30, 40, 50 or more foot candles of illumination—and that's what we need for better, faster production."

WORKER—"Sounds good to me. I've worked under MILLER fluorescent and I know I've worked better and felt better simply because I could see what I was doing at all times clearly and sharply."

MAINTENANCE MAN — "Those lightweight Masonite reflectors MILLER uses will take plenty of punishment, and yet a girl can handle their cleaning. I like the exposed ballasts because they mean cooler operation. And I go big for that MILLER Patented Safety Lamp Lock that keeps lamps from falling."

ELECTRICAL CONTRACTOR — "I can handle the installation of MILLER equipment in less time, shorthanded as I am for trained help. Units go together easily into self-aligned runs. Hanging is simplified. I've had MILLER jobs result in installation savings of 30 to 50% to owners."

ARCHITECT — "I've specified MILLER Continuous Wireway Fluorescent Lighting Systems on both new construction and modernization projects. The beauty of it is its flexibility. Whole sections, or even the entire system can readily be moved to other parts of the plant."

UTILITY ENGINEER — "From power source right through to controls, the whole MILLER setup saves considerable critical material—and provides an adequate, modern lighting system . . . something we utility guys have been preaching for years."

OWNER — "You fellows hit both my pocketbook and my patriotism. I say let's specify MILLER 50 & 100 FOOT CANDLERS—and let's get a MILLER field man in pronto to talk turkey."

THE MILLER COMPANY • MERIDEN, CONNECTICUT

MILLER SINCE 1844

ILLUMINATING DIVISION
Fluorescent, Incandescent
Mercury Lighting Equipment

OIL GOODS DIVISION
Domestic Oil Burners
and Liquid Fuel Devices

ROLLING MILL DIVISION
Phosphor Bronze and Brass
in Sheets, Strips and Rolls

WAR CONTRACTS DIVISION
War Materiel

SECURITY FRICTION TAPE is on the job in shipyards all over the country. It's used for emergency repairs, for electrical connections...for scores of jobs that only tape can handle.

FINGER IN THE DIKE—1944 STYLE

Remember the Dutch boy who saved a nation by plugging a hole in a dike with his finger? Emergency repairs done promptly can have big results.

Take welding cable in a shipyard, for instance. If the insulation on a length of cable gets cut...an electrode goes out of business. To replace the cable itself would mean a long, tedious operation...the loss of precious hours in building Liberty Ships.

Every lost second counts and precious minutes would be wasted if a roll of tape weren't handy to repair the break. It is only a temporary expedient, naturally, but it saves much valuable time that would be lost waiting for a new length of cable to be installed.

Listen to the Philharmonic Symphony program over the CBS network Sunday afternoon, 3:00 to 4:30 E. W. T. Carl Van Doren and a guest star present an interlude of historical significance.

SECURITY ON ALL FRONTS

UNITED STATES RUBBER COMPANY

1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK 20, N. Y.

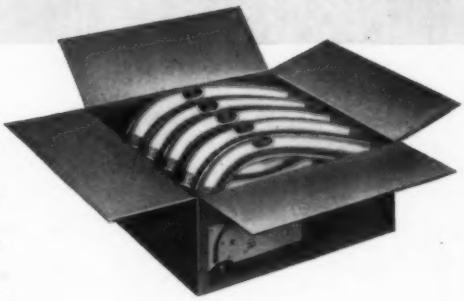
The BIGGEST Thing in Ells Today!

MAKE FRIENDS FOR THE JOBBER

THEY'RE EASIER TO STOCK

MAKE HAPPIER WORKMEN

EASIER TO HANDLE



Conduit *cartoned* elbows make the jobber happier, and right on down the line . . the counterman, the truckman, the electrician! Why? They're easier to stock, easier to handle . . . and *these elbows* are *right*. They're properly fabricated in accordance with U. L. Specs., perfectly threaded, correctly bent, and with every starting thread protected. This cartoning of elbows is only one of the ideas originated to give Conduit Pipe Products a plus value to the jobber.

REPRESENTATIVES IN PRINCIPAL CITIES

Conduit

PIPE PRODUCTS CO.

COLUMBUS, OHIO

PIPE COUPLINGS PIPE NIPPLES ELBOWS, 90° AND 45°

RUNNING THREAD PIPE GOOSENECKS WALLPLATES

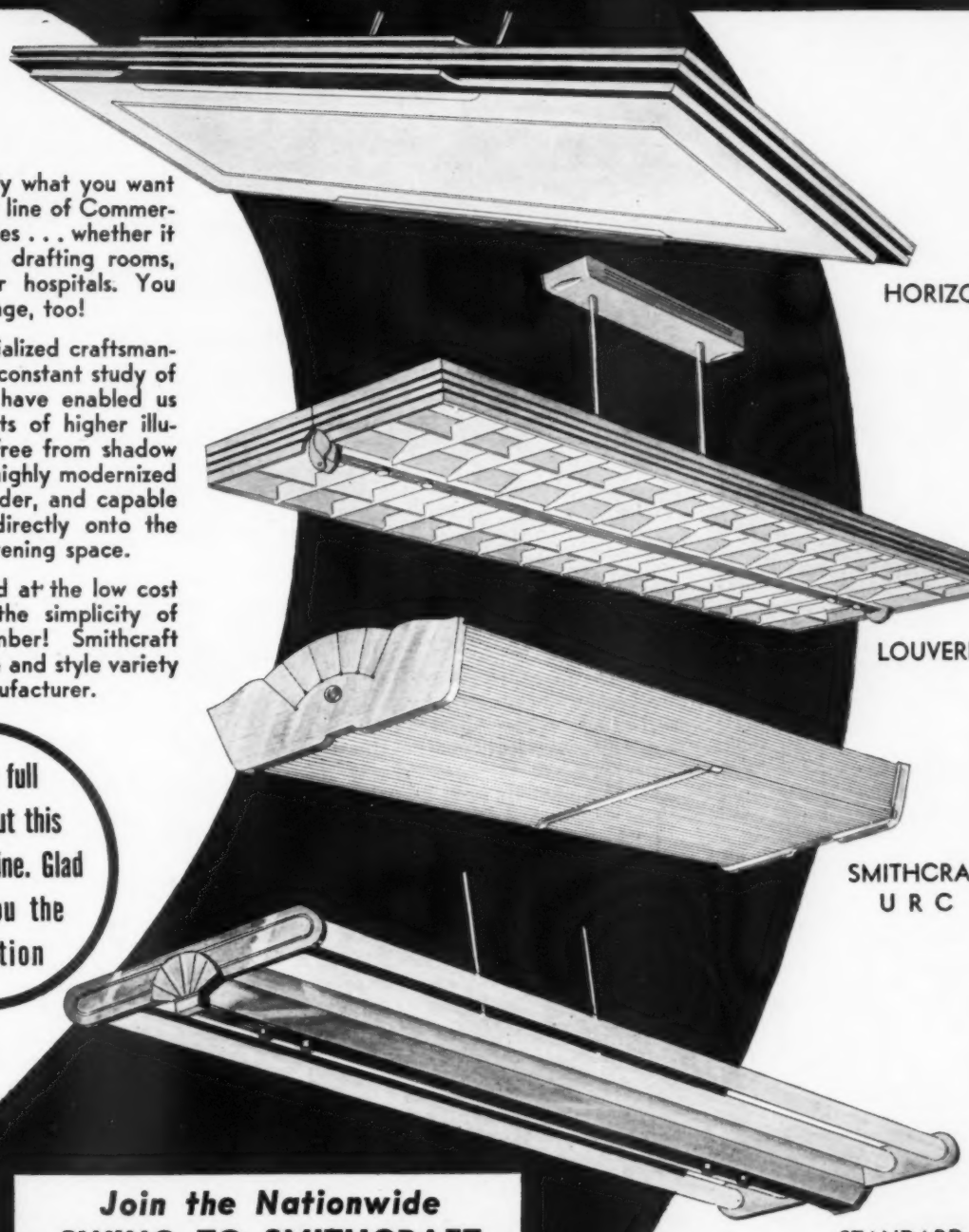
Variety of smart, modern styles Meets every installation and price requirement

and **ALL FROM THE SAME MANUFACTURER**

You will find exactly what you want in the new Smithcraft line of Commercial Fluorescent Fixtures . . . whether it is for office lighting, drafting rooms, buildings, schools, or hospitals. You have a wide price range, too!

Fifty years of specialized craftsmanship together with a constant study of lighting engineering have enabled us to provide these units of higher illumination levels . . . free from shadow and glare. They are highly modernized . . . streamlined, slender, and capable of being mounted directly onto the ceiling without intervening space.

You will be amazed at the low cost of installation and the simplicity of maintenance. Remember! Smithcraft gives you price range and style variety — all from one manufacturer.



Write for full details about this outstanding line. Glad to give you the information

Back the Attack
BUY
WAR BONDS

Join the Nationwide
SWING TO SMITHCRAFT

SMITHCRAFT

A. L. SMITH IRON CO.
Chelsea 50, Mass.

A COMPLETE LINE OF COMMERCIAL AND INDUSTRIAL FIXTURES

ALL THE BEST SELLERS IN ONE BOOK

When your customer wants to replenish his Maintenance and Repair stock of Pressure (solderless) Connectors, whip out your T&B Catalog 44, turn deftly to Bulletin 2, give him the dope an' the price, an' write out the order.

If he needs any good strong selling points on this Lock-Tite Line, you'll find plenty of them in the same place.

And don't forget that all the other T&B best sellers are illustrated and described with engineering data in the other Bulletins in the same catalog.

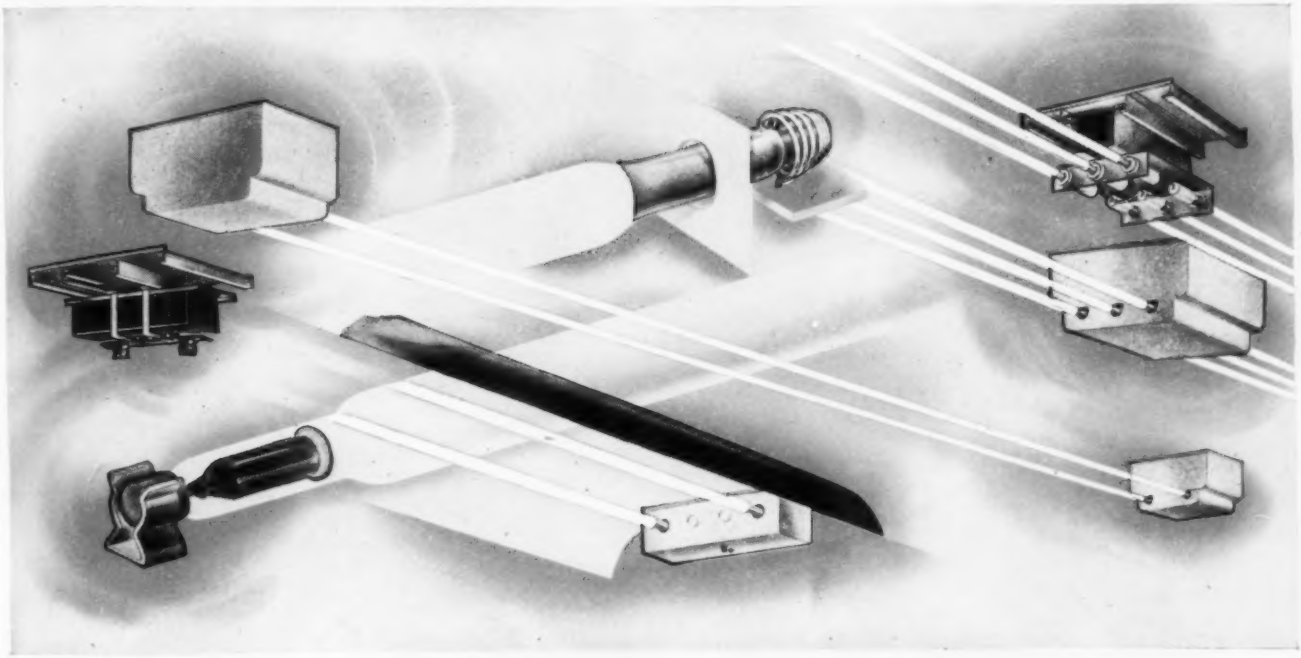
QUIZ: What electrical manufacturer would rather lose a sale than by-pass the wholesaler? Here's a cue: The first letter is T and the second is B

Reddy

THE THOMAS & BETTS CO.
INCORPORATED
MANUFACTURERS OF ELECTRICAL FITTINGS SINCE 1899
ELIZABETH, NEW JERSEY
In Canada: Thomas & Betts Ltd. Montreal

E Flag awarded April, 1943
White Star awarded October, 1943

Turn "lumen hours" into "lumen years"



...THE NEW COLOVOLT lamp

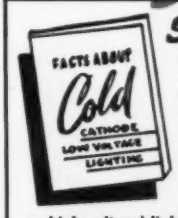
COLD CATHODE LOW VOLTAGE

8000 HOURS of rated life is what the new COLOVOLT lamps offer you! Is it any wonder that we say "lumen hours" turn into "lumen years" with cold cathode low voltage fluorescent lighting the new COLOVOLT way!

8000 hours of rated life (guaranteed for one year) insures *low maintenance* cost, which means maximum lighting efficiency, actually *greater than any previously known cold cathode lighting.*

Operation is on *low* voltage, eliminating high voltage wiring and bulky transformers (although lamps may be used for high voltage operation if desired). Moreover, COLOVOLT lamps start up immediately—require no starters. Colovolt illumination is constant—steady and unaffected by shock or vibration. The lamps are free of "strob" or flicker when used on capacitative and inductive reactor.

Available in standard 7 ft. 9 in. lengths, these lamps give longer light sources . . . better line lighting. As package items, the lamps compare most favorably with custom-built cold-cathode lighting in every respect! All of the special features of COLOVOLT are possible only because absolutely new lighting principles are employed.



Send today for booklet "Facts About Cold Cathode Low Voltage Lighting" . . . written in concise, understandable terms. Booklet tells where and how to use cold cathode (low or high voltage) lighting. Complete with performance charts and data to give a comprehensive picture of the advantages *and the disadvantages* of cold cathode fluorescent lighting for all types of lighting problems. Request your copy today!

GENERAL LUMINESCENT CORPORATION

638 SOUTH FEDERAL ST., CHICAGO, ILL.

. . . QUALITY and SERVICE Since 1911

EFFICIENT—DEPENDABLE
—ECONOMICAL—

ECONOMY renewable FUSES

ECONOMY . . . Renewable Cartridge Fuses and "Drop Out" Renewal Links

CLEARSITE . . . Plug Fuses—Shows when blown

ARKLESS . . . . . Non-Renewable Mechanical Indicating Cartridge Fuses

ECO . . . . . Non-Renewable — Non-Indicating Cartridge Fuses

● We make ECONOMY FUSES for every electrical circuit. Quality and dependable service recommend these time-tested fuses. ECONOMY FUSES were made famous by the "drop out" Renewal Link.

ECONOMY FUSE AND MANUFACTURING CO.

2717 NORTH GREENVIEW AVE. CHICAGO 14, ILLINOIS

Good Tapes are like Good Tools

BOTH are vital to *Good Workmanship*

"TAKE it from me, mister, I've been using STIXWEL friction tape for many years and it's as important to me as the best tool in my kit."

VETERAN electricians know from experience that STIXWEL'S fine quality makes it a standout among tapes. Every roll is backed by over half a century of quality manufacturing.

ELECTRICAL wholesalers find that STIX-WEL sales build customer goodwill . . . assure lasting satisfaction.

Clifton

MANUFACTURING CO. Inc.

BOSTON 26, MASS.

MITCHELL *Introduces* KOLD·VOLT

Advantages of MITCHELL KOLD-VOLT Cold Cathode Lighting Fixture

STARTERS ARE ELIMINATED

INSTANTANEOUS STARTING. The lamps light immediately when the switch is "thrown," just like incandescent lamps. No flickering.

400% MORE LAMP LIFE. The useful life of the cold cathode lamp is approximately *FOUR TIMES* that of a conventional type "F" fluorescent lamp. The lamps in the MITCHELL KOLD-VOLT are unconditionally *guaranteed* to give *one solid year* of burning without replacement. Life expectancy is upward of *10,000 burning hours*, or the equal of *three years of service* in an average installation where fixtures burn 8 to 10 hours per day.

OPERATES AT LOWER ROOM TEMPERATURES. Cold cathode lamps are being operated outdoors with success. Low temperatures do not affect their starting.

NOT SENSITIVE TO LINE VOLTAGE VARIATION. The MITCHELL KOLD-VOLT fixture operates on regular 110-125 A.C. voltage—will start instantly and light the tubes on line voltage as low as 100 volts without flicker.

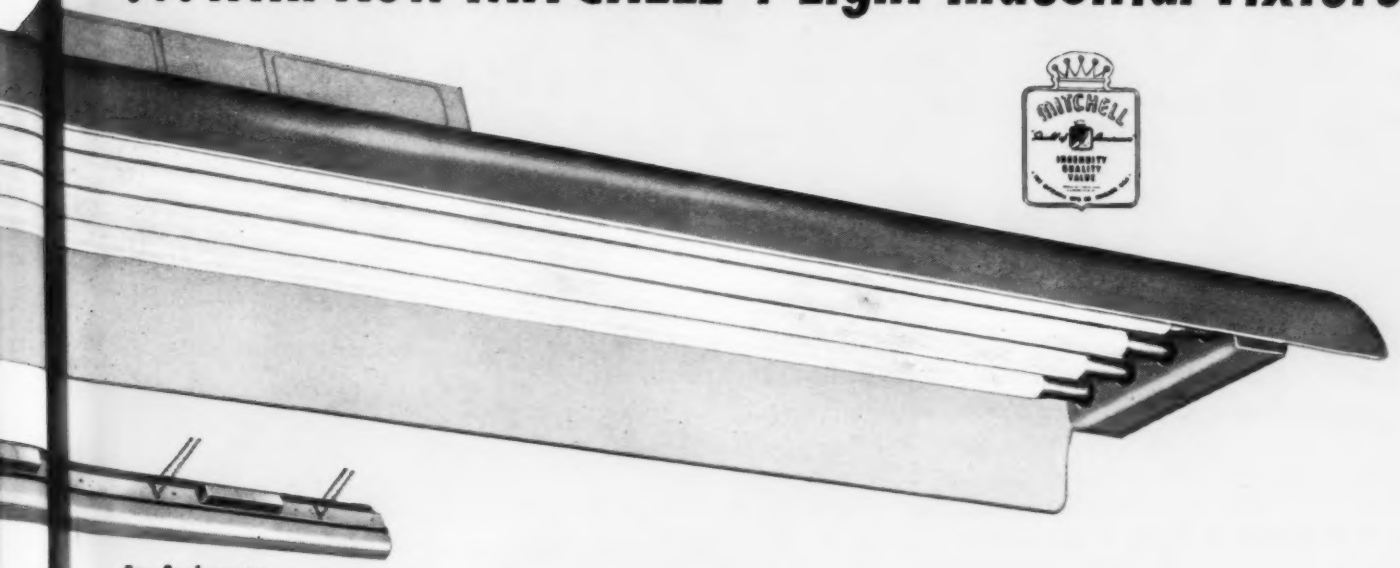
CONSIDERABLY REDUCED MAINTENANCE. There are no starters to replace. Lamps are replaced just once every one to three years. All the lamps in an installation can practically be replaced at a chosen time, thereby making possible a more efficient and less costly replacement problem. Huge savings in man-power will result.

NEED FEWER FIXTURES. The eight foot length of the MITCHELL KOLD-VOLT fixture means fewer fixtures to install.

LOWER SURFACE BRIGHTNESS. Surface brightness (glare) is substantially reduced — approximately ¼ reduction in brightness over regular "F" type lamp.

The First Cold Cathode Fluorescent in a Packaged Unit

Instantaneous Starting! 4 Times More Lamp Life! ...with New MITCHELL 4-Light Industrial Fixture!



For Surface or Suspension Mounting, Individually or in Continuous Rows.

For the first time—cold cathode lighting is now available to all industry in a standard, "packaged" unit! The MITCHELL KOLD-VOLT industrial fixture brings you the advantages of *instantaneous starting—400% more lamp life—greatly reduced maintenance!*

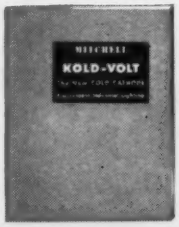
Cold cathode lighting is *fluorescent lighting.* The cold cathode lamps used in the MITCHELL KOLD-VOLT are similar in appearance and general lighting qualities to the regular conventional "F" type fluorescent lamps. They are 7′ 9″ long, 1″ in diameter, and employ a different type of cathode.

Cold cathode lighting is *time-tested.* Its benefits were formerly available only for special custom-made lighting jobs. Recognizing the advantages this type of lighting brings to industry (see opposite page), MITCHELL today has developed a lighting unit which takes cold cathode out of the "luxury class" and makes it generally available for industrial use at moderate cost.

One MITCHELL KOLD-VOLT fixture does the work of two conventional fluorescent fixtures of the 2-40 watt "F" type. It is 8 feet long overall, uses 4 "Colovolt" cold cathode low voltage fluorescent tubes, delivers a total of 8800 lumens of light. Average lamp life expectancy is 10,000 hours, each lamp unconditionally guaranteed for one full year. The unit has a sturdily constructed heavy gauge steel wireway channel, with two Duo Ballasts. Can be mounted individually (surface or suspension) or can be attached in end-to-end continuous rows for long lines of glare-free, uninterrupted light. Reflector is famous non-metal "Lumenite," baked enamel white inside, attractive gray outside. Operates from 110-125 volts, 60 Cycle, A.C. Power factor 99%. Stroboscopic corrected. MITCHELL KOLD-VOLT comes to you complete with 4 lamps, wired ready for hanging.

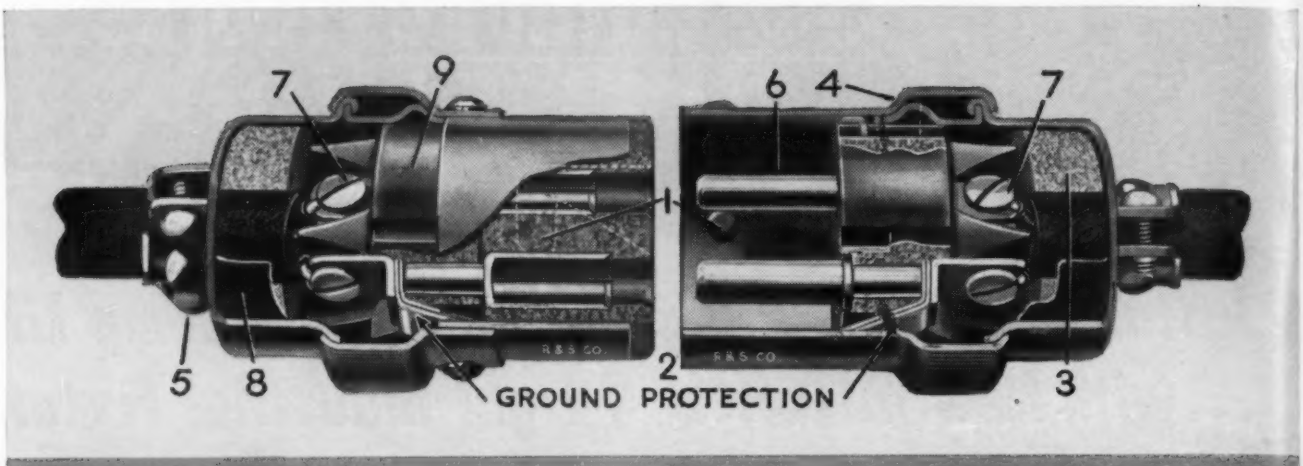
Write immediately for
MITCHELL KOLD-VOLT CATALOG No. 278

Get complete information about the lighting performance, construction, maintenance and other features of the new MITCHELL KOLD-VOLT cold cathode industrial fixture. Write for Catalog No. 278 today!



MITCHELL FLUORESCENT

MITCHELL *Manufacturing Co.*
2525 Clybourn Ave., Chicago 14, Illinois



EVER-LOK

(Trade Mark)

Receptacles, Plugs and Cord Connectors

Ever-Lok is a simple automatic locking connection. It prevents accidental disconnection, is self aligning, well built and available in the form of receptacles and plugs for outlet and conduit boxes, surface and gang types, reverse and multiple circuit, weathertight and for cord connectors and also many special adaptations. The principal features shown above are—

1. Automatic Locking is positive—no chance of faulty contact. A twist of plug shell permits instant unlocking and withdrawal of plug.

2. Positive Grounding provides maximum protection to personnel and equipment.

3. Dust-proof—to exclude metal particles, dust, etc., from interiors of plugs and connectors.

4. Steel-Clad — Provides maximum protection. Light in weight, yet sturdy.

5. Cord Grip — Adjustable for wide range of cable sizes. Prevents strains on connections and protects cable.

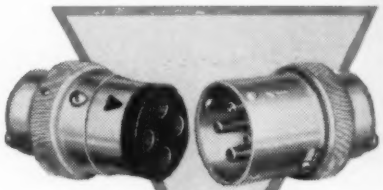
6. Contacts are machined, self-wiping and self-aligning.

7. Unit Assembly—Housing assembly plus interior assembly—easy wiring—only two pieces to handle. No screws to take out and lose.

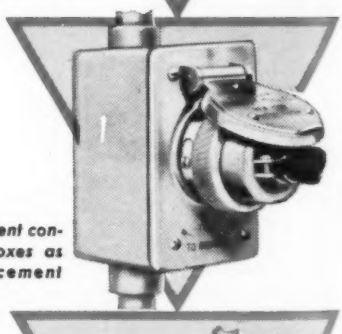
8. Caps fibre-lined to prevent stray wire ends touching the shell.

9. Interiors—molded bakelite.

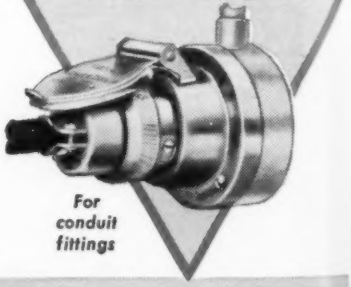
10. Polarized — Plugs cannot be inserted the wrong way.



The locking feature



In present conduit boxes as replacement units.



For conduit fittings

RUSSELL & STOLL COMPANY

125 BARCLAY STREET
NEW YORK 7, N. Y.

Ask your jobber or contractor about R&S explosion-proof and water-proof fixtures and fittings.

EXPLOSION-PROOF, WATER-TIGHT, AND EVER-LOK

8

Leader

PRESENTS

"THE OFFICER"

LEADER "*Know How*" BRINGS THE ADVANTAGES OF FUTURE LIGHTING *Today*

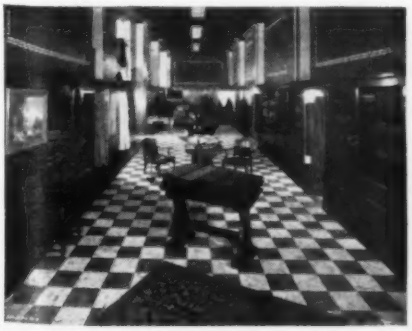
Unusual beauty incorporated through skillful engineering with the ultimate in servicing and construction features, makes the new Officer . . . Model V-440, a fascinating addition to the Leader line of fluorescent fixtures.

Diffusion of natural lamp brightness is accomplished by use of hard wood high gloss louvre without sacrificing light output. The translucent side panels of rugged molded plastic allow light transmission without glare, producing a soft illuminating effect.

Wafer thin, clean cut appearance insures trim and smart installations, improving the lighting facilities and enhancing the beauty of the establishment.

LeaderV440 is designed for individual or continuous run mounting for either ceiling or pendant installation. Louvre, flush in unit is hinged on one side to permit servicing of unit. Tracks for surface mounting of fixture can be provided to facilitate installation. Brackets are fastened to unit and after fixture slides on the tracks, the automatic lock prevents fixture from sliding off track. No screws are necessary.

TYPICAL V-440 INSTALLATIONS



For complete information and specifications write for Bulletin V88.

LEADER ELECTRIC MANUFACTURING CORP.

6127 BROADWAY, CHICAGO 40, ILLINOIS

Where DEPENDABILITY COUNTS...

WIRE IT WITH WALKER

SHIPBOARD CABLES

Leaded or Non-Leaded
Synthetic or Varnished Cambric Insulation
In accordance with Specification AIEE-45A and
USMC Design Memo #46

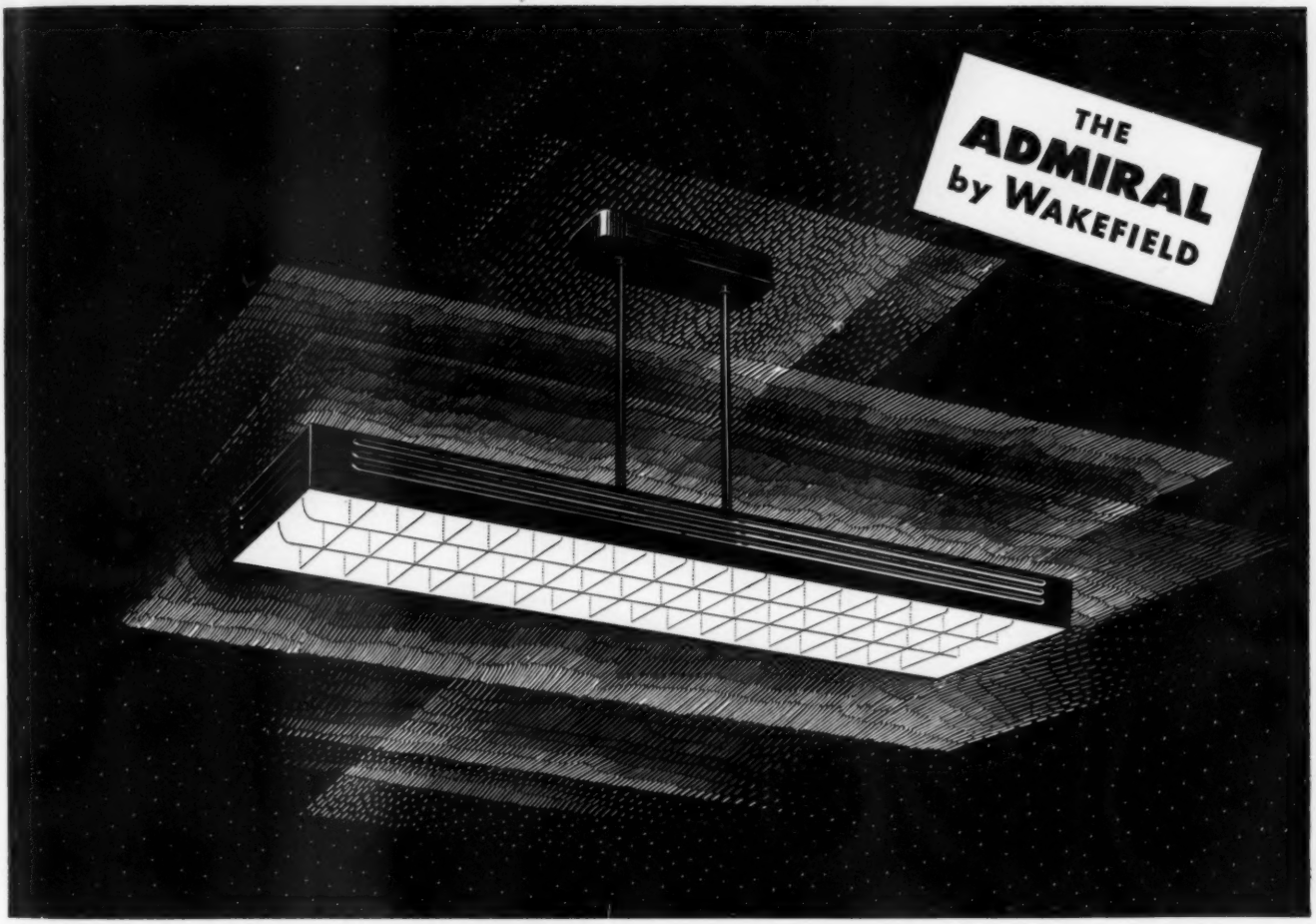
Ask your local Distributor for prices and deliveries that you can rely upon.
WALKER BROS., Conshohocken, Pa.

Other Quality Products by Walker of Conshohocken

"Preset-Inserts" Underfloor Distribution Systems
"Dualcote" Rigid Steel Conduit
Electric Metallic Tubing
Rubber-covered, Synthetic and Leaded Wires and Cables
"Walkerflex" Non-Metallic Sheathed Cables
Service Entrance Cables
Automotive Wires and Cables

WALKER of Conshohocken

For lighting war plant OFFICE or DRAFTING ROOM



Effective . . . Efficient . . . Attractive!

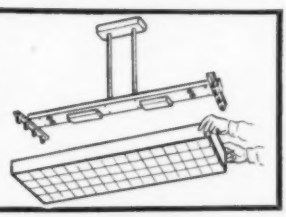
PLEASING to look at, "tops" to see by, and built for service . . . that's the ADMIRAL! It is a natural for lighting the essential office or drafting room. Tell your customers!

Made largely from wood, the ADMIRAL conserves war material and meets WPB limitations on use of metal. At the same time, it provides efficient, high intensity, diffused fluorescent light to help handle wartime paper work faster, with less eyestrain.

The ADMIRAL puts 90% of its light down on desk tops or boards and allows the rest to go upward to avoid ceiling contrasts. This makes it especially effective for work that involves critical seeing or for relighting older office space which has poor ceilings. Walnut finish outside, white enamel inside. Comes in 2, 3 and 4-lamp units. Write us for details that will help you serve your customers.

HELP PREVENT INDUSTRIAL ACCIDENTS . . . GUARD MOVING PARTS . . . HAVE GOOD LIGHT . . . BE ALERT.

Note the demountable feature of the Admiral's frame and reflector. This makes it easy to clean, or re-paint to fit new office decorative schemes.
Wakefield also offers several other fluorescent units for office lighting. We'll be glad to send details on request.



THE F. W. Wakefield BRASS COMPANY

RED ● SPOT LIGHTING FOR WAR PRODUCTION . . . FOR PEACETIME FUTURE

VERMILION, OHIO

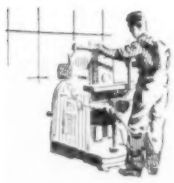
ARROW

DUR ABLE

DEPENDABLE

SWITCHES

POWER- LIGHT



DISTRIBUTED THROUGH
ELECTRICAL WHOLESALERS

"Hot wires", heavy loads, round-the-clock operating schedules, — these demand super-stamina in switches. *These are the switches!* — HEAVY-DUTY CONTROLS FOR LIGHTING OR POWER CIRCUITS IN INDUSTRIAL PLANTS. Specification-grade T-rated 10, 20 and 30 Ampere "Type C" Switches, Rotary Snap Switches, Ceiling Pull Switches, Door Switches, Flush Tumbler Switches with or without outlet box covers. Mechanisms long-tested and singled out for the *peak* performance now so necessary. Pick them for flawless service on the critical jobs.

ARROW ELECTRIC DIVISION

THE ARROW-HART & HEGEMAN ELECTRIC COMPANY, HARTFORD, CONN., U.S.A.

TIMES and TRENDS

Convoy-Cover In our war effort ships have been the most important single item of war equipment. Without ships the huge outputs of our war production plants could not be transported to the many far-flung battle fronts of the Allied Nations.

The ship building industry—building everything from small landing barges to Liberty and Victory ships and battle ships—has accounted for a large slice of the record sales volume that has been reported by electrical wholesalers in every one of our sea coast, lakes and river towns.

Today, and for the duration, most of our ships—loaded with war goods—will be traveling in convoy for better protection. Tomorrow, when victory has been won, those ships will be carrying record-breaking peacetime cargoes singly and unmolested to the four corners of the Earth, to every port on the Seven Seas.

Wholesalers, who are prepared for servicing merchant ships look forward to many years of prosperous business.

★

Civilian Goods and Appliances Fortunes of war, as reflected in events during the last few weeks, have changed materially the attitude of official Washington toward easing restrictions on raw materials for civilian needs.

Experiences gained in the African, Sicilian and Italian invasions demonstrated that no standardized model of invasion equipment suits every purpose. There were quick shifts in production schedules. Even new types of equipment had to be designed and put into production before success-with-the-least-loss-of-life could be achieved.

Signs everywhere indicate that the long heralded invasion of Western Europe is imminent. Those responsible for our war production are taking no chances on having vital war plants and personnel get interested in reconversion or making civilian goods until the Generals at the battle front know what they need and how much and when, in order to crack Mr. Hitler's "Fortress Europe" wide open.

Therefore the character of the war news during the next few months will decide to a great degree the types and quantities of civilian goods that may go into production this year.

Right now it's a case of standing by and watching developments but smart wholesalers find that the time can be well employed, getting dealers and service men lined up for the big push in consumer selling that looms on the horizon.

★

Surplus Goods It can be taken for granted that the recommendations included in the report by Bernard M. Baruch, made public February 19,1944, already carry the approval of practically every interested government agency involved in the problem.

Under the proposed plan a "Surplus Property Policy Board" would have primary control over all policies affecting surplus goods disposal. Actual disposal of *consumer* goods would be handled by the Treasury Procurement Division. *Capital* and *producer* goods and all types of industrial property would be required to clear through a single RFC subsidiary.

Substantially the report incorporates most of the recommendations that various business groups have advanced. Whether all, or how much of it will be finally adopted for general practice still remains to be seen.

Certain it is that pressure from every quarter for adoption of a uniform nationally enforced surplus goods disposal plan should not yet be relaxed.

It should be remembered that any set-up must be acceptable to the Army, Navy, Treasury, War Production Board, Maritime Commission, Reconstruction Finance Corp., Budget Bureau, State Department, Foreign Economic Administration, the Attorney General and several other agencies. Therefore anything can happen to upset Mr. Baruch's apple cart and the only way of getting a uniform plan adopted is to keep pushing for it.

★

Industry Advisory Committee Regardless of all the good work that has been accomplished so far by the Electrical Wholesaling Industry's WPB Advisory Committee, it looks now that one of the greatest opportunities of service to the industry will be

(Here's another ad in the series that brings a vital message to your customers.)

In postwar planning...

HOW is just as important as WHAT

NO MANUFACTURER can predict all the new products he will make in the next decade. But he does know that new and improved methods of *producing* them are already here—methods calling for increased use of electric power.

That's why far-seeing management is attaching such importance to *adequate wiring* . . . seeing that it's a basic part of all postwar planning. They realize that tomorrow's competitive position will depend more than ever on electric energy . . . *and adequate wiring to harness it.*

Right now is the time to find out how *your* plant's wiring system measures up . . . what it needs to meet postwar requirements. By all means, bring your electrical contractor and utility power engineer into the advance planning stage. *Unwired* planning will cost you a lot more than *planned wiring.*

ADEQUATE WIRING — KEY TO POSTWAR BUSINESS — SERVES AND SAVES

44234

HELP BRING VICTORY SOONER . . . BUY MORE WAR BONDS

ANACONDA

ANACONDA WIRE & CABLE COMPANY

25 Broadway, New York 4 . . . Sales Offices in Principal Cities

Electrical Wires and Cables of Copper are the Life Lines of our Nation

pitched into the committee's lap when a uniform plan for surplus goods disposal is adopted.

Recent conversations with high officials of several of the very important agencies working on the plan, indicated general acceptance of the premise that for best results the respective WPB advisory committees should actively participate in determining and guiding the disposal methods employed in connection with goods affecting each particular industry.

Electrical wholesalers are fortunate in being represented on their particular WPB committee by men who really know the business and who will not fail to speak up if things are starting to move in the wrong direction. We bespeak for the entire committee the wholehearted support of the entire industry.

★

Casualties Whenever we have had opportunity to talk with high ranking officers of our Army and Navy, we have been impressed by their earnest desire to conduct this war so that casualties will be held almost to the irreducible minimum. The cost in money is always considered secondary to the saving of lives.

How effective their efforts have been is clearly shown by a report recently released by Gerard Swope, president of General Electric Co.

He states that the company still has 39,236 employees in different branches of our armed services, after approximately 2400 have been honorably discharged and put back on the company's pay roll. Only 156 out of that huge total have either lost their lives or are reported missing.

★

Housing Angles In these pages, last month we recorded one angle on the much-heralded housing boom —Moving day. Here are some other angles—similarly interesting.

There is the "vacancies" angle. Up in Northern New York, built to take care of a presumably urgent housing need, out of 5,300 housing units, nearly 4,100 are empty. In a "critical" area near Philadelphia less than 400 were occupied out of a total of 2,200 units. In several NHA developments, expressly designed for "executive" occupancy about one out of each four units is occupied— the rest vacant— and in South Western Pennsylvania one "executive's" development of 1,200 units is reported as being completed with not a single executive recorded as a "taker."

These vacancies angles will make it seem quite natural that after all this promiscuous building there should be a "raze 'em" angle, and—there is.

None less than the Administrator of the National Housing Agency is authority for the statement that they expect to demolish 400,851 units, built at a cost of $1,025,353,000 to avoid the possibility of having tenantless "ghost" towns cluttering up the landscape with monuments to the recklessness of war-time spending.

We record here these "angles" on the expected housing boom just to point the moral that you can't expect to drive down the American standard of living even by imposing temporary war-time hardships or headaches.

Those egg-shell "houses" may be accepted by patriotic workmen and women as temporary shelter during an emergency, but you can bet your last dollar that nine out of ten of those who occupied "egg-shell" prefab shelters will be looking for a nice well-built home to put their money into just as soon as they can get to it.

And what about those "executives" who did not occupy some of the package homes. Well—they are going back to the town where they like to live and build themselves the kind of a home they always dreamed about—with the money they saved, living in a packing box.

Why do we relate all these "angles" on the expected housing boom? Well—just because we think that all these "angles" add weight to the argument that that housing boom really will happen.

To win a war American workmen and women will take all sorts of hardships with a smile. When the war is won they'll want every last one of those intangible and tangible somethings, that collectively are called "The American Standard of Living" and for which they fought. A home of their own will stand high on the list of things to get.

★

Butter and Bathtubs The British won't take any lend-lease linseed oil for edible use and Russia refuses to take larger quantities of lend-lease linseed oil for edible use, says *Business Week*.

So . . . . . Russia is going to get one hundred million more pounds of lend-lease butter—equal to 5 percent of the total U. S. supply in 1944, and we don't know how many million pounds of lend-lease butter the British get. For the home folks butter rations are cut to 12.1 pounds per person in 1944 while experts don't know what to do about our linseed oil surplus.

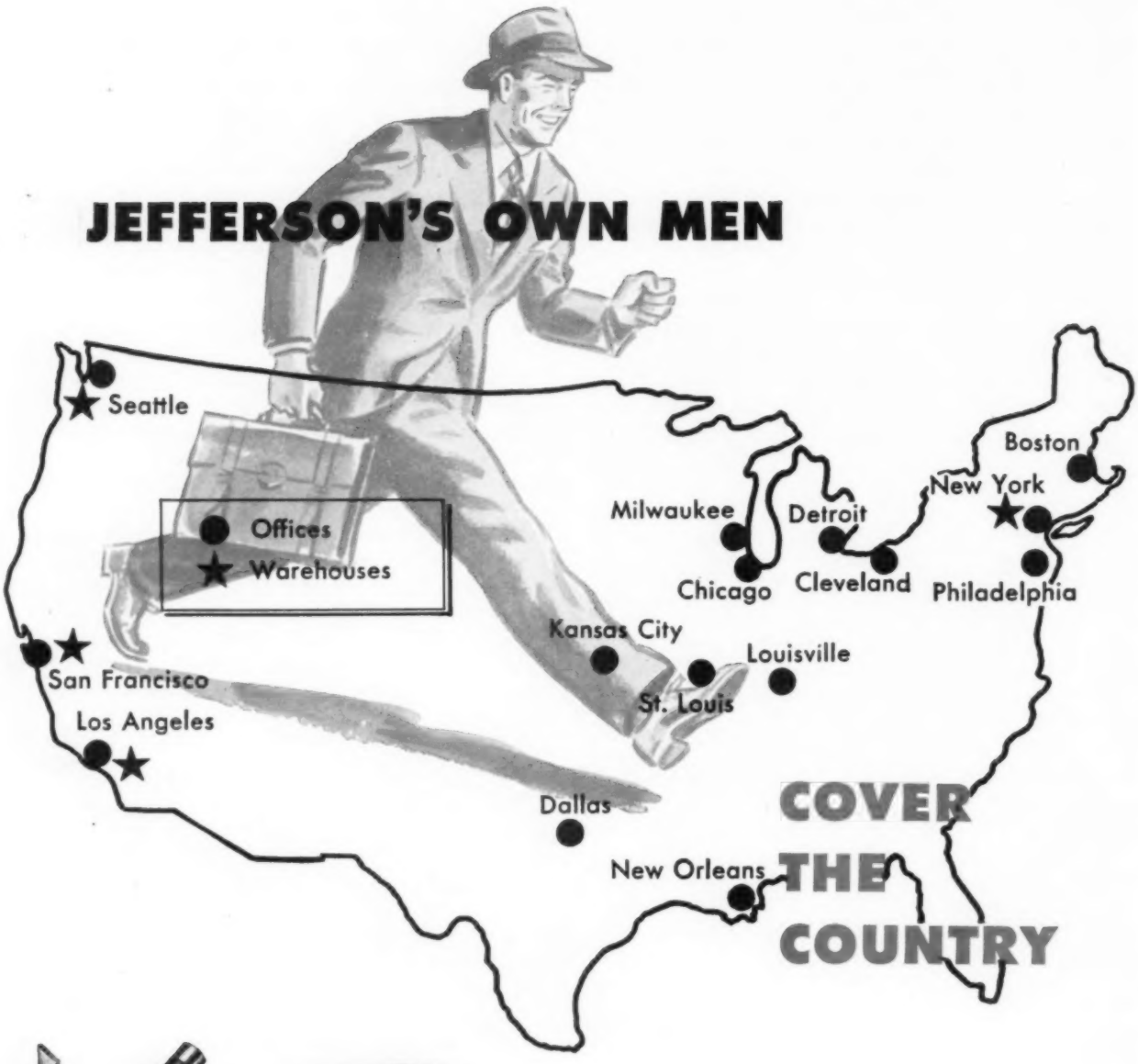
Also—A United Press dispatch from London reads: "Modern plumbing is being installed for the first time in the servants' quarters of Buckingham Palace."

Well . . . . . it took a world war to do it.

O. Fred. Rost

EDITOR

JEFFERSON'S OWN MEN



JEFFERSON ELECTRIC

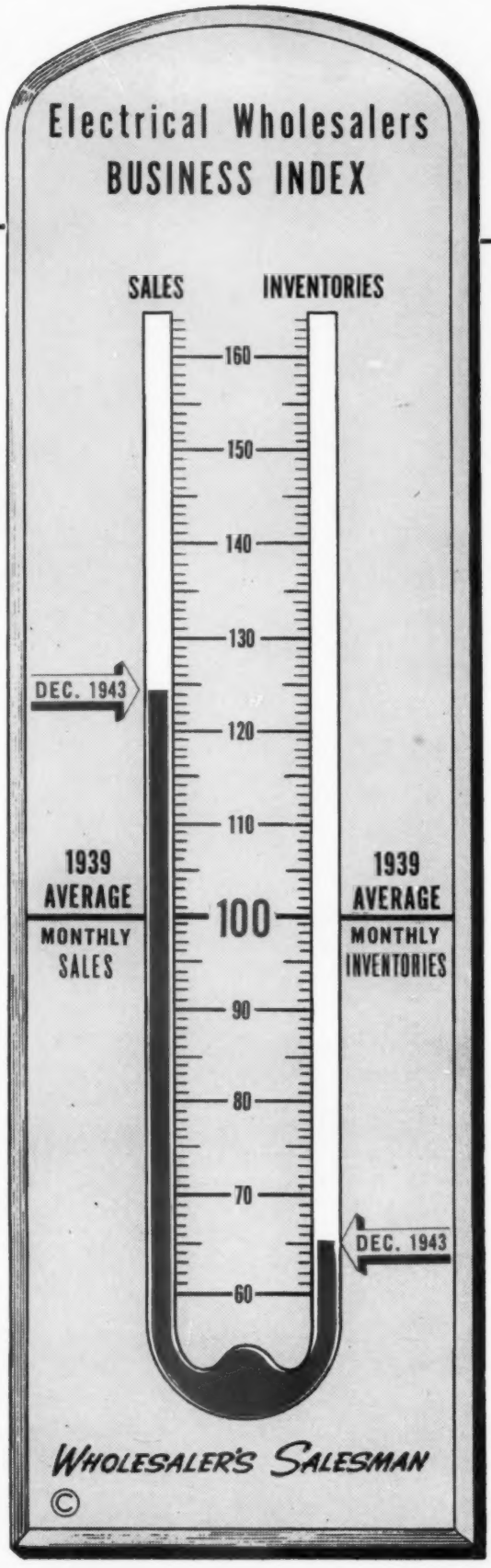
Located accessible to every part of the country, the Jefferson corps of experienced sales engineers is immediately available at all times.

These men are thoroughly acquainted with all the products carrying the Jefferson name. They are ready to assist in making proper selections,—make recommendations, and help you increase your sales and profits.

The long established acceptance for Jefferson Electric Transformers, Ballasts, Jefferson Union Fuses—is the result of reliable performance from one end of the country to the other for more than a quarter of a century to meet your particular requirements.

JEFFERSON ELECTRIC COMPANY, Bellwood *(Suburb of Chicago)* Illinois

Canadian Factory: 60-64 Osler Ave., W. Toronto, Ont.



Business Index
For the Month of December 1943

SALES Total sales of electrical goods by wholesalers throughout the country in December were 11 percent above the November volume, thus registering the highest month-to-month gain since March 1943, and the second highest in more than a year. The gain is even more impressive when it is noted that sales in the previous month were 4 percent above October.

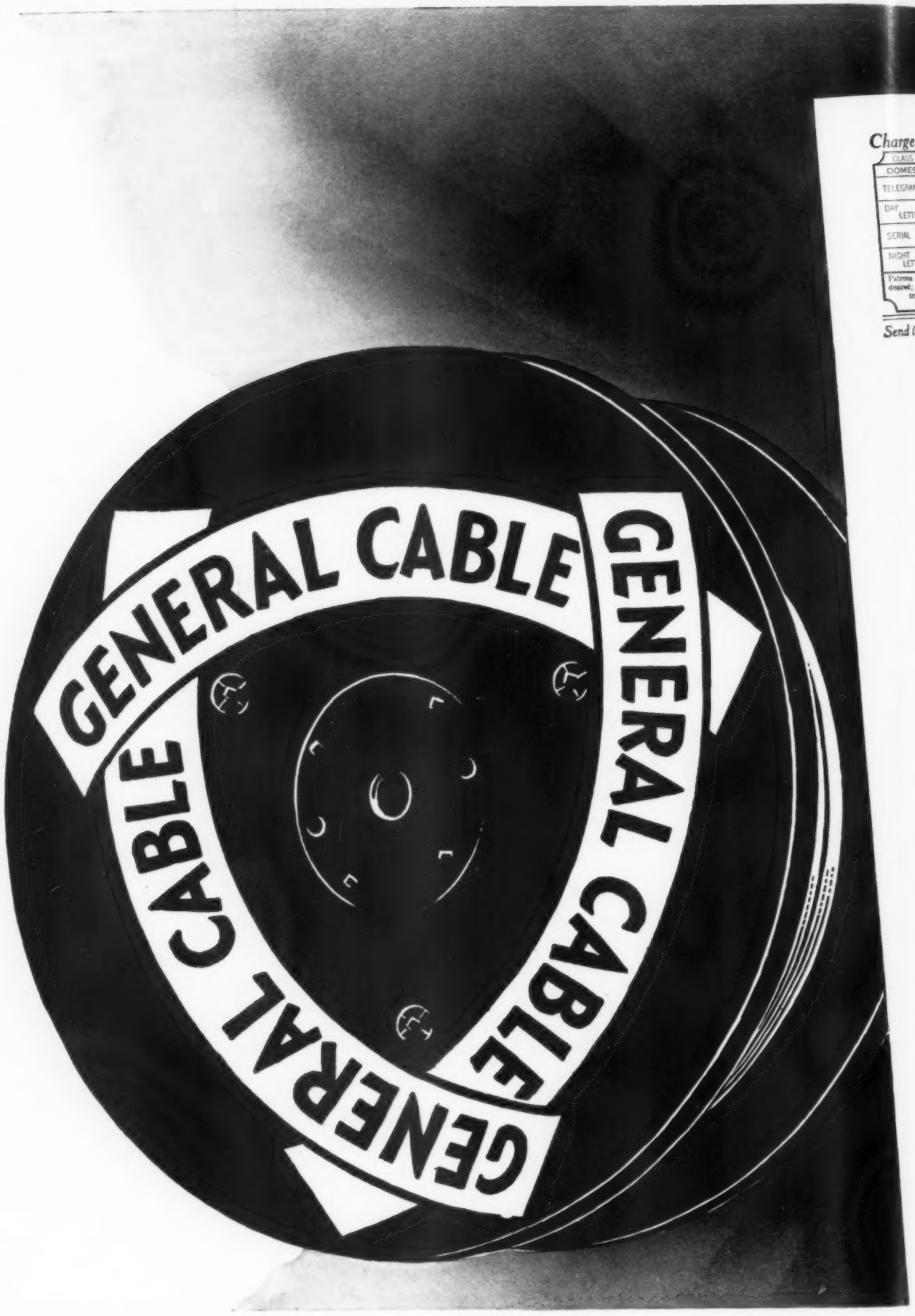
As this sharp December increase in sales comes without benefit of appliances or holiday items, and after a period of six months in which the index has shown never more than a five point gain or decline from the figures of the preceding month, it may possibly foreshadow a general trend toward higher sales.

When compared to the 1939 average, the December performance is less impressive, as sales for December were at 124 percent, a drop of 10 points from the preceding month, but it must be remembered that the 1939 figures represent business in a comparatively normal peace-time year, during which a large part of holiday-goods billings would fall in November.

INVENTORIES In spite of the 11 percent gain in sales shown by December, over the previous month which ordinarily could be expected to cut into inventories, the stocks of electrical wholesalers throughout the country were only 2 percent below the November inventory level. This might mean, that more manufacturers have reached the position where they can fill much of the wholesalers' needs with little delay. When it is considered that this 2 percent decline follows a month of large sales gains, and two months in which wholesalers inventories averaged at 100 percent or more of the previous month, it actually reflects a well balanced in-and-out movement of goods.

COLLECTIONS Collections throughout the country were reported at an average of 85 percent. This represented a gain of 5 points above the collection figure reported for November, and 16 points above the figures for December, 1942. Accounts receivable showed no marked change from November 1943 but were 31 percent below December 1942.

SOURCE The figures we use as basis for these monthly comparisons of performance in the electrical wholesaling field are collected and compiled by the Bureau of the Census of the U. S. Department of Commerce.



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WESTERN UNION

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ACCOUNTING INFORMATION

TIME FILED

A. N. WILLIAMS, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

legram, subject to the terms on back hereof, which are hereby agreed to

1944, FEB. 17

TO OUR CUSTOMERS:

CONTINUING OUR SURVEY OF THE PRACTICES, CONDITIONS AND PROCEDURES THAT HAVE BEEN EXISTENT IN THE WIRE AND CABLE INDUSTRY OVER A PERIOD OF YEARS, WE ARE SATISFIED THAT THE ELIMINATION OF SOME OF THESE POLICIES CANNOT HELP BUT RESULT IN SUBSTANTIAL BENEFITS TO ALL BRANCHES OF THE ELECTRICAL INDUSTRY, TO ALL CUSTOMERS AND TO THE GENERAL PUBLIC. AS OUR STUDIES DEVELOP THE NEED FOR CORRECTIVE MEASURES, WE WILL, IN LINE WITH OUR CONSISTENT POLICY, PROMPTLY INSTITUTE SUCH CHANGES AS EXPERIENCE AND CONSIDERED OPINION WARRANT.

AT THIS TIME WE FEEL IT INCUMBENT UPON US TO ASSUME "CLEARANCE OF THE DECKS" IN RESPECT TO REELS, SPOOLS AND CASES WHICH ARE USED FOR THE SHIPMENT OF PRODUCTS OF OUR MANUFACTURE.

EFFECTIVE MARCH 1, ALL GENERAL CABLE CORPORATION CONTAINERS WILL BE SHIPPED ON A "NO CHARGE" BASIS AND NO PAYMENT OR DEPOSIT WILL BE REQUIRED.

WE HAVE CONFIDENCE THAT OPERATION OF THIS PLAN WILL RECEIVE THE SUPPORT AND COOPERATION OF ALL PARTIES AT INTEREST, ELIMINATING AS IT DOES THE PRESENT COSTLY AND MANPOWER-CONSUMING METHOD OF HANDLING CONTAINERS. IT IS REQUESTED THAT ALL GENERAL CABLE CORPORATION RETURNABLE TYPE CONTAINERS BE RETURNED PROMPTLY, FREIGHT COLLECT.

WE WILL ALLOW CREDIT FOR THE RETURN OF ALL CONTAINERS YOU HAVE BEEN BILLED FOR AS CONTAINERS AND WHICH YOU HAVE PAID FOR, PROVIDED THEY ARE RETURNED IN GOOD CONDITION ON OR BEFORE FEBRUARY 28, 1945. AFTER THAT DATE, NO CREDIT WILL BE ALLOWED FOR THE RETURN OF CONTAINERS.

THE COOPERATIVE EFFORT OF ALL CONCERNED WILL DETERMINE THE EFFECTIVENESS OF OUR POLICY AND OF OUR ABILITY TO CONTINUE IT.

GENERAL CABLE CORPORATION....

C O R P O R A T I O N

WHOLESALER'S SALESMAN BUSINESS INDEX

REGIONAL ANALYSIS

DECEMBER, 1943

FOR the second successive month the breakdown of sales by wholesalers into geographical regions shows a very unbalanced distribution of these sales. While the national figure was 111 percent for December when compared to the previous month, sales in the region varied from 6 points below to 12 points above the national figure.

Outstanding in the regional performance figures is the report from the Middle Atlantic States which shows that December sales were 23 percent above those of November. Although these states, through their activities as vital centers of war-time manufacture and commerce, have always been among the leaders in sales gain, such an increase as scored in December is far ahead of what may be considered average for that region. A spurt in sales such as shown for December occurred in March 1933 when those same states showed a 33 percent gain over the previous month.

Regional inventory figures for December show no drastic fluctuations from the previous month. Except in two regions, Nos. 4 and 6, the totals indicate that deliveries from manufacturers were sufficient to hold inventories within 3 percent of the national figure.

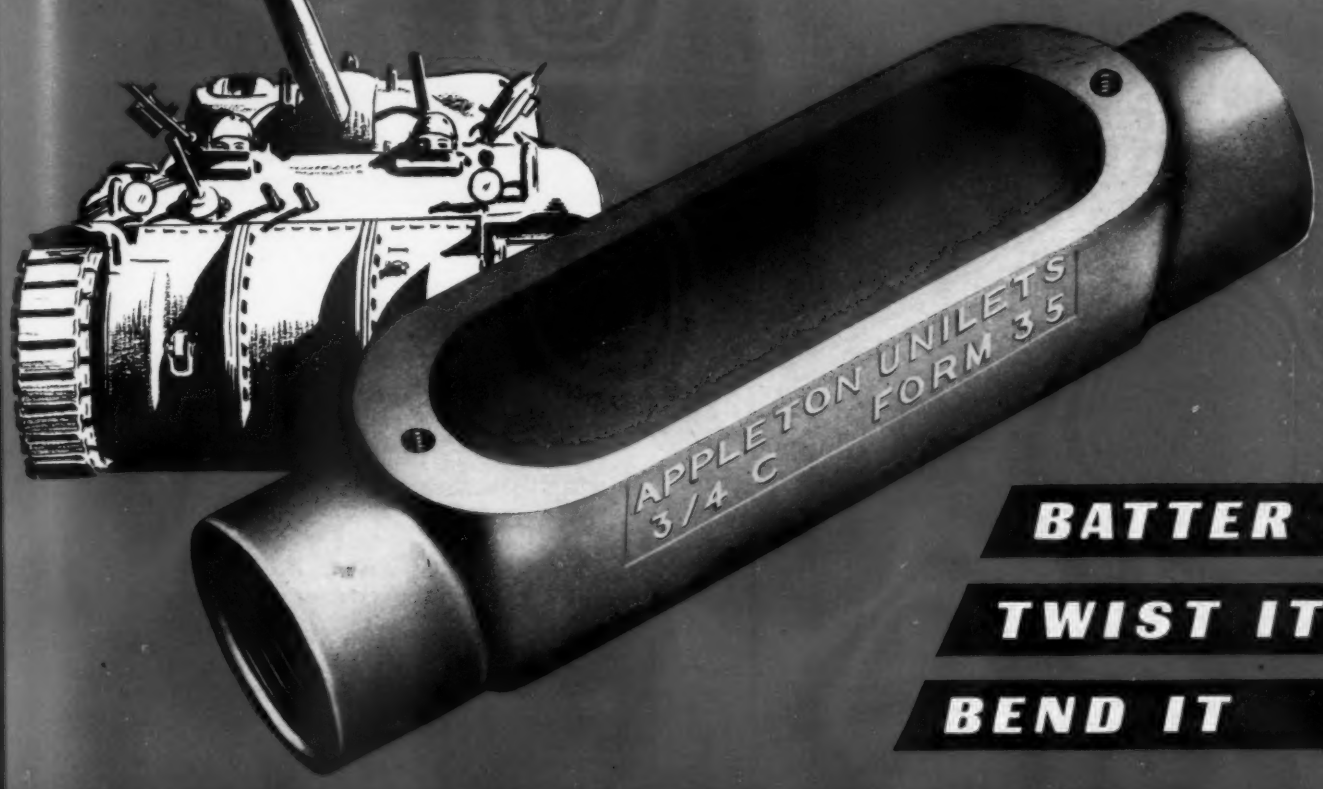
However, regions 4 (West North Central) and 6 (East South Central) jumped ahead of the field with stocks reported at 106 and 104 percent of the November inventories. For the West North Central states, this figure represented the first month since June 1943, that stocks of electrical materials have been reported at more than the previous month. On the other hand, the East South Central States have been among the regional leaders in maintenance of inventory, with reports of stocks at 100 percent or more of the previous month in 6 of the past 12 months.

As regions 4 and 6 are both predominantly agricultural groups of states, the high levels of inventories reported from there seem to indicate that the WPB's relaxing of many restrictions on materials for farmers is resulting in a heavier flow of electrical supplies and materials to those areas. As further evidence of this trend is the report from region 7, another largely agricultural group of states, showing that inventories were at 99 percent of the previous months level.

Figures in this table apply to the geographic divisions as outlined and numbered in red ink on map above

SALES December, 1943 Compared in % to		Trading Region (See Map)	INVENTORY December, 1943 Compared in % to	
November 1943	December 1942		November 1943	December 1942
96	100	1	99	77
123	81	2	99	73
111	95	3	97	80
119	122	4	106	77
106	81	5	94	77
113	80	6	104	82
105	83	7	99	91
119	90	8	98	88
111	83	9	96	110
111	**88**	For **U. S. A.**	**98**	**84**

TOUGH—like a TANK



BATTER IT

TWIST IT

BEND IT

You Won't Break It Because It's An APPLETON "UNILET"—and It's Cast

MALLEABLE IRON

AN APPLETON CAST MALLEABLE "UNILET"
For Every Requirement

Tough . . . and then some! Appleton "Unilets" are made of the sam stuff used for tank steering, braking, drive and clutch assemblie engine supports; gun mounts, and controls—*Cast Malleable Iro* They're tough enough to take any punishment . . . and ask for more

Appleton "Unilets" are stronger, yet lighter, than ordinary ca electrical fittings. Their perfect alignment, the precision with whic they're made and finished, expedite installation and improve worl manship all around. They last as long as any building.

In the complete Appleton line are more than 15,000 distinct type and sizes of "Unilets", Outlet and Switch Boxes and Lighting Fi tures—*exactly the right fitting for every purpose*—all made in Appleto foundries and fabricating plants under highest quality standard They're "STANDARD FOR BETTER WIRING!"

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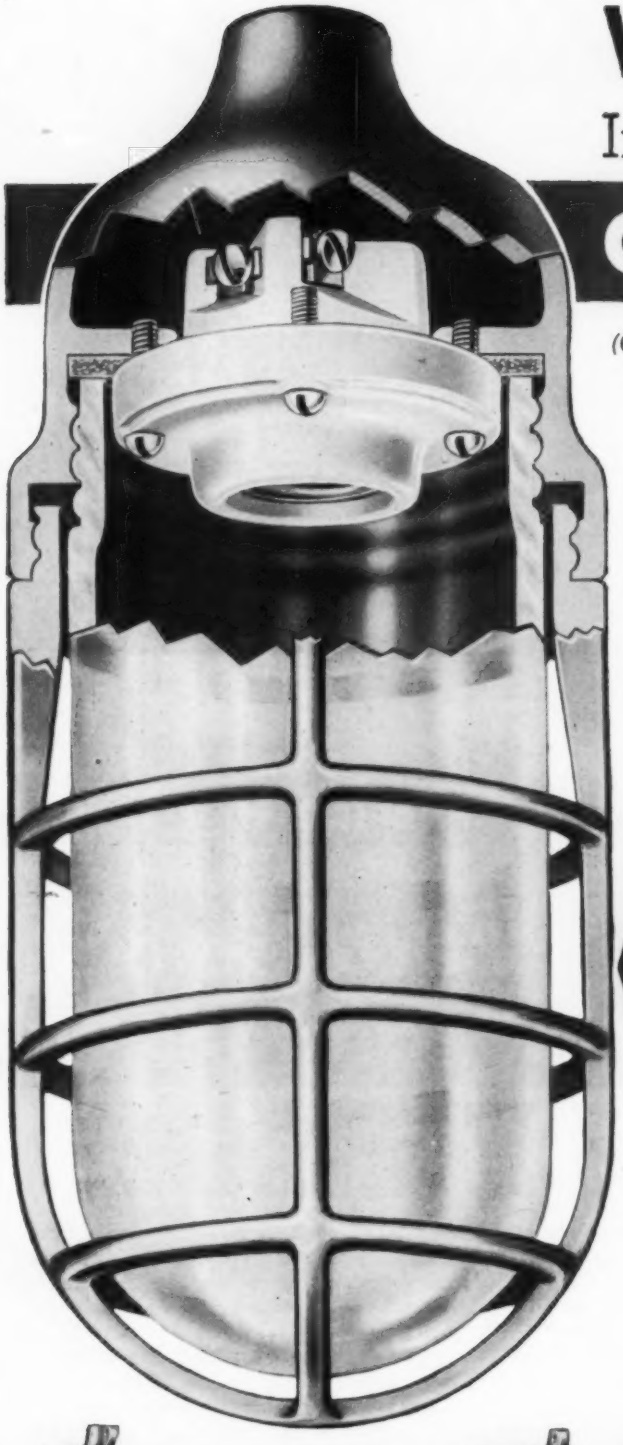
APPLETON ELECTRIC PRODUCTS

APPLETON

CONDUIT FITTINGS • OUTLET AND SWITCH BOXES • EXPLOSION-PROOF FITTINGS • REELITES



Vaportight
Industrial Lighting
CONDULETS

(CONDULETS are manufactured only by CROUSE-HINDS)

For boiler rooms, shower rooms, powerhouses, tunnels, docks, building entrances, and all indoor or outdoor locations where exposed to vapors, moisture, rain, smoke, or non-explosive dust and gas.

Vaportight and raintight.

Wiring chamber remains vaportight even though globe is off.

Screw guard or clamp guard types.

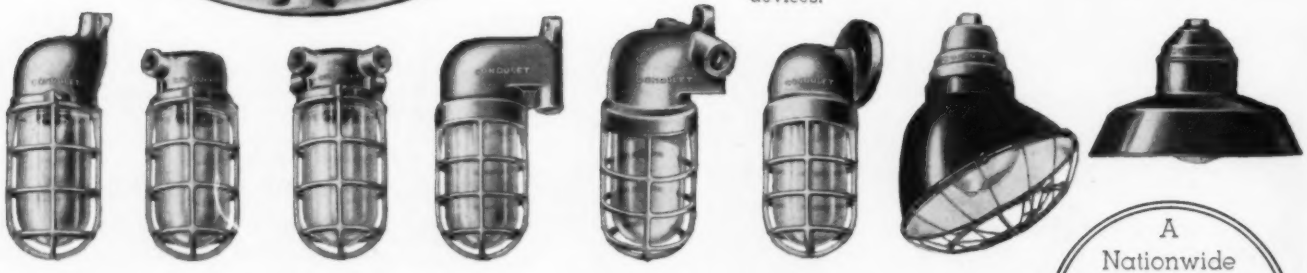
12 Hub arrangements.

4 Reflector styles.

Accessories: colored globes, guards, half shades, adapters.

4 Sizes: 50 through 500-Watt.

Other ***Vaportight*** lighting fixtures are available for attachment to many round-base Condulets and sheet steel outlet boxes. Crouse-Hinds complete ***Vaportight*** line includes hand lamps, switches, plug receptacles, and other electrical devices.



A Nationwide Distribution Through Electrical Wholesalers

CROUSE-HINDS COMPANY
SYRACUSE 1, N. Y., U.S.A.
CROUSE-HINDS COMPANY OF CANADA, LTD., TORONTO, ONT.

WHOLESALERS!
YOU WILL BE INTERESTED
in Electro's new merchandising
plans for the 1944-1945
Fluor-O-Master Line of
Fluorescent Lighting
SEE OUR DISPLAY AT THE
CONVENTION NEXT MONTH!
The newest Fluoromaster achievement – a 1944-1945 precision-built lighting line to be shown at the April Convention.
WAIT UNTIL THEN... see for yourself how Electro is utilizing to the fullest extent the precision skills now being obtained in the manufacture of electrical devices for the armed forces... such as radar equipment and explosion-proof motors.
But MORE than a new line... you will want to check these features of our complete new five-star merchandising policy:
★ Popular-priced
★ Restricted Distribution
★ 3-way Engineering
★ E. T. L., U. L. & ELECTRO Standards
★ I. B. E. W. affiliated with A. F. of L.
If you don't plan to be at the Convention, write us for complete information.
ELECTRO MANUFACTURING CO.
2000 W. FULTON ST., CHICAGO, ILLINOIS
SEE OUR DISPLAY AT THE CONVENTION, APRIL 19-22, STEVENS HOTEL

Just one flat glass surface to wash.
BENJAMIN
Cover clamps are easily opened without tools.
Benjamin "Type II-G" Sealed Flo 48" units are listed by Underwriters' Laboratories for Class II, Group F and G, III and IV hazardous locations. Available in twin and triple-lamp units, with plain or impact resisting cover glass.
Cover hangs straight down for easy servicing.

Specify Benjamin SEALED-FLO *Fluorescent* LIGHTING UNITS

✓ ***For More Light*** *in departments with adverse atmospheric conditions*

✓ ***For More Easily Sustained High Lighting Levels***

✓ ***For Simplified Maintenance***

To secure the advantages of fluorescent lighting where combustible dusts in the atmosphere may create fire and explosion hazards and where maintenance due to dirt and vapor is a problem, specify Benjamin Type II-G "Sealed-Flo 48" units.

Dust-Tight and Vapor-Tight

These extremely durable, porcelain enamel fixtures, with their one-piece steel reflector and special type glass cover seal the interior against dust and dampness. All that is required to maintain the rated output of these units is cleaning the cover glass and re-lamping when needed. Exclusive Benjamin constructions embodied in these units reduce maintenance time to a minimum. Cover clamps are easily opened by hand; hinged cover facilitates re-lamping.

High Lighting Efficiency

In general lighting installations, Twin-Lamp Sealed-Flo units provide lighting levels ranging from 20 to 48 footcandles at normal mounting and spacing. Triple-lamp units provide approximately 28 to 65 footcandles. These units are also widely employed for local lighting of inspection tables, production lines and machines. Twin-Lamp units provide up to 100 footcandles and Triple-Lamp units up to 135 footcandles for such applications.

Listed by Underwriters' Laboratories for Certain Locations Requiring Dust-Tight or Vapor-Tight Lighting Units

These units satisfy all Underwriters' requirements for Class II, Group F and G hazardous locations, Class III and IV locations. They are available on the same priorities as other industrial fluorescent and incandescent equipment. For further details and complete data on these units

Write for free Data Bulletin today

Benjamin Electric Mfg. Co.

Product Information Department GG Des Plaines, Illinois

BENJAMIN TRADE MARK

Lighting Equipment

DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

Disposal of Government Inventories

How to dispose of government surpluses when the war ends need not be an insuperable problem – if we face it promptly and intelligently. But if we do not, peacetime markets may be disrupted, government funds wasted, production discouraged, and reconversion of the whole economy to peace seriously hampered.

What we need most in order to attack the problem is estimates of how much surplus there will be, in what types of goods, and where.

At the war's end, government inventory of war goods is likely to total around 60 billion dollars. Most of this will consist of aircraft, ships, and other ordnance. Only some 15 billion dollars or less will be in food, clothing, trucks, tools, chemicals, medical supplies, transportation, engineering and communication equipment, and other goods for which there is a civilian market.

In addition, war contractors will have about 10 billion dollars of inventories, the bulk in specialized raw materials, goods in process, and finished products. Only about one-fifth of the total, or some 2 billion dollars, will be marketable or usable for civilian purposes. While the government takes over the usable inventory, the ex-war-contractors will have to build up their stocks for peacetime production, so that on balance, they will not be disposing of usable inventories in large volume.

Not even all of the usable war-end inventory will be "surplus" for sale to civilians in competition with new production. Some of it will be needed by the sizable peacetime Army and Navy we are likely to maintain, and such additional items as can be stored without serious deterioration or obsolescence will be held against possible future war emergencies. Some of it will be disposed of abroad. And up to half of it will be abroad and may be sold there or used for relief.

After allowing for these factors, the war supplies to be disposed of in our own markets probably will be less than 10 billion dollars (cost basis). While the total is not overwhelming – the equivalent of two months' retail sales – in certain lines the surplus will be several years', instead of a few months', normal supply. In particular, the volume of scrap metals available from otherwise unusable munitions will present a problem.

A great deal can be done now to reduce the size of the postwar surpluses by achieving a better balance between military needs and supplies and avoiding excessive inventories of particular raw materials or finished goods. This work needs to be pressed, not only to simplify our transition to peace but also to prevent wasting productive energies during the war. Furthermore, when the war ends on one front, inventories of war materiel should be worked down to the reduced scale of remaining military activity.

We cannot develop programs of action until we know approximately how much of each type of item is to be sold, and where and when it will be available. Wide margins of error are inevitable as long as large-scale procurement and large-scale consumption are still taking place; yet such information is essential and must be developed. Indeed, improved inventory records and estimates are badly needed for the conduct of the war as well as for managing the surpluses after hostilities cease.

In decisions on the disposal of war-goods inventories, the public interest must be the prime consideration. Proposals that none of these goods should be sold domestically because of competition with new production obviously are untenable. Everything that is not needed by the Armed Services or for other special purposes should be disposed of ultimately. The real problem is not whether surpluses should be sold, but rather to whom, at what price, and at what time the sale should be effected.

In the distribution of such large quantities of goods, we believe that established trade channels should be used wherever possible. Otherwise, we shall witness widespread speculation in war goods and the mushroom growth of inefficient and disruptive fly-by-night distributors. This will benefit only a few speculators and will discourage legitimate producers and distributors from making their normal commitments.

All war contractors should have the privilege of retaining those inventories for which they are willing to pay actual cost or a fair price negotiated with the gov-

ernment procurement agency. The balance of the inventories in the hands of war producers should be assembled by the government and sold in an organized manner. It is of great importance that the plants be cleared of these inventories at once so that the process of conversion to peacetime operation can proceed without further delay. To accomplish this, preparations must be made before the end of the war for speedy determination of the inventories to be moved and for a huge volume of storage space to accommodate them.

The price which can be realized and the timing of sale are closely related. Certainly the best prices will not be secured if the government attempts to dispose of large supplies of material and products suddenly without regard to market conditions. Most businessmen rightly favor an early transfer of surplus inventories from government to private ownership. But, they also realize that if all the surpluses are dumped indiscriminately as they become available, many markets will be badly depressed, and the resulting low prices will bring lower production. If this depression effect becomes general, as it easily can, it will be costly to the nation in terms of jobs, income, and goods.

In industries in which production is inadequate to meet postwar demands, an immediate sale of government inventories can prevent inflated prices and preserve balanced market conditions. In cases in which the surpluses are large in relation to annual production, the disposition can be scheduled over a period of years. Generally, however, it will be best to clear the surpluses as quickly as orderly sale can be accomplished rather than to leave them as a continuing threat overhanging the market. Most industries can, and should, take the disposal process in their stride without special dispensations from the government. In this connection, it should be noted that the tax provisions for carry-back of losses and excess profit credits after the war greatly increase the possibilities for speedy disposal of surpluses without serious injury to producers.

There will be some industries, however, in which the postwar surplus is so large that it would practically saturate the market for years to come. The problem of these industries is further complicated by their wartime expansion of capacity many fold in excess of peacetime requirements. These lines of production are, moreover, crucial for our national defense. Aircraft and shipbuilding are cases in point. Each of these situations calls for careful study and discussion by all concerned to devise means to keep alive the necessary production organizations, the research effort, and the spirit of enterprise. Insofar as possible, the individual manufacturers should work out their own salvation in the conversion to peacetime markets. They can do this by taking on new lines, by increasing their production efficiency, and by developing technical improvements which make the existing inventories obsolete. But they still will need some kind of government protection or assistance while the huge surpluses are being worked off. It is most important, however, that such protection or subsidy be limited to a period of three to five years. It must not become permanent unless it is really essential for our national security.

The disposal of surplus inventories is part of the whole process of demobilization of the war effort and conversion to peace. If this process is to be accomplished with minimum dislocation and injury to our economy, it will have to be directed by a central agency which has developed adequate information service and is in position to coordinate the policies of the Armed Services and the other interested executive branches of the government. This agency should draw freely on the knowledge of businessmen in the specialized problems of marketing surpluses in each industry. It should formulate definite programs of inventory disposal for all industries in which the problem is acute; and it should make these programs public as soon as possible, so that business can plan for the future with confidence. In large measure, the success with which we make the economic transition to peace will depend on the quality of government administration in the process of industrial demobilization. We shall need better organization for the transition to peace than we had in mobilization for war if we are to avoid needless unemployment, loss of production, and frustration of business enterprise.

President, McGraw-Hill Publishing Company, Inc.

GENERAL ELECTRIC DISTRIBUTORS Offer

G-E WHITE RIGID CONDUIT
G-E BLACK RIGID CONDUIT

For Utmost Wiring Protection

These two high quality rigid conduits, handled by G-E Wiring Materials Distributors, are carefully manufactured by skilled craftsmen. Both are leaders in their classes. Both are easy to bend.

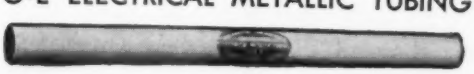
G-E White Rigid Conduit is hot-dipped galvanized and Glyptal-coated inside and out. This method of manufacture provides a heavier coating of zinc than could be applied in any other way and bonds the zinc to the steel.

G-E Black Rigid Conduit is coated inside and out with tough asphaltic-base enamel which remains chemically inert in the presence of corrosive liquids or fumes.

One of these conduits or the other will supply exactly the right protection needed for wiring in any location. Consequently, G-E Distributor salesmen can serve conduit customers well. General Electric Company, Appliance and Merchandise Department, Bridgeport, Conn.

GENERAL ELECTRIC

G-E ELECTRICAL METALLIC TUBING



G-E high quality electrical metallic tubing, also handled by G-E Wiring Materials Distributors, offers wiring system protection when chances of mechanical injury or corrosion are not severe. It is manufactured from open hearth steel and is electro-galvanized on the outside and black-enamelled on the inside. It bends easily and accurately. Compression fittings are available.

Hear the General Electric radio programs: The G-E "All Girl Orchestra" Sunday 10 P.M. EWT, NBC. "The World Today" news every weekday 6:45 P.M. EWT, CBS.

BUY WAR BONDS

War or No War—Ships Need

Servicing ships with needed electrical supplies and equipment requires "super specialist" salesmen, trained inside men, adequate stocks

SUPPLYING electrical materials to replace those worn or damaged on a ship during a sea voyage is a distinct phase of marine electrical wholesaling that has been offering attractive opportunities during the last few years to many salesmen whose houses already handle the usual line of marine supplies. And not only are the opportunities increasing for other qualified salesmen to enter this field as more and more ships come off the ways every day but there is every prospect of a sizeable spreading of this business after the war. In fact all authorities agree that our overseas trade will grow to record peacetime proportions after hostilities cease.

Right now the servicing of ships with electrical supplies is an essential part of the nation's job of keeping open the supply lines of a global war. Tomorrow, after peace is won, this servicing will be equally important to our success in a highly competitive international trade.

Although the nature of the business would appear to limit it to the larger coastal and river ports, needed developments have caused many shifts in this work to other ports. As many of these ports are not those normally enjoying a large shipping business, the situation has opened the field to many salesmen who can equip themselves with the precise knowledge needed to handle this business. It also leaves the way open for a post-war re-shifting that will bring marine servicing business within the territory of many wholesalers who do not have it today.

But whatever ports may be involved and whether the business is in wartime or in peacetime even the regular marine wholesalers will find that this ship servicing business can be handled profitably only with the most intimate knowledge of its requirements.

Today no ships are putting to sea, at least none of those large enough to need electrical equipment, unless they perform some war function. So the character of today's service requirements is drastically different from that experienced in peacetime servicing of passenger liners, freighters and tankers, which to the old-time marine wholesaler is only a memory.

To get an idea of the scope and problems of wartime operation in this field, let's visit what might be called Censored City, a large port on one of our coasts.

A ship has reached this port after a long, treacherous crossing that was not kind to the electrical equipment on board. Many weeks of hard wear, damage from the weather and the sea, maybe even damage from enemy attack—all added to the abnormal depreciation of electrical equipment—have made replacements and repairs an urgent necessity.

That means that a wholesaler's salesman will be needed, one who

A Rush Order that Must Be Filled to Keep a Ship Sailing

24 Batteries, Dry Cell, Fire Alarm	12 Plug, Attachment
12 Plugs, Cargo for Plug Box	12 Sockets with S Type fittings
4 Flashlights, 3 Cell	6 Sockets, Pigtail
30 Flashlight Batteries, 3 Cell	12 Socket Adaptors, Mogul
24 Flashlight Bulbs, 3.8 v.	3 Interiors for P.B. Switches
10 Fuses, Cartridge, 100 amp.	4 Rolls—Tape, Friction
12 Fuses, Cartridge, 60 amp.	2 Rolls—Tape, Rubber
12 Fuses, Cartridge, 30 amp.	50 (ft.) Wire, Cable, Portable, 3 Wire
100 (ea.) Refills for Fuses, Cartridge, 30, 60, 100 amp.	24 Brushes, Fan and Springs
12 Fuses, Plug, 30 amp.	48 Lamps, Mazda, 25 watt, Blue
100 Refills for Fuses, Plug, 30 amp.	12 Lamps, Mazda, 75 watt
	24 Nitrogen, 200 watt

The above is one order, word for word as received by an East Coast wholesaler's salesman as one of the ships he services arrived in port after the long trip across the Atlantic. Other orders supplement this and the salesman will probably visit the ship and pick up other needs.

To Keep 'Em Sailing Electrical Equipment Always

By Howard J. Emerson

can specify and get delivery on the right materials or equipment or improvise, and who can do it in time to permit that ship to sail on time. That's why some wholesaler's salesman, one who specializes in marine supplies and who is qualified to do the work, will be ready to start as soon as the ship docks. He will know the ship's electrical equipment almost as well as the chief electrician, for he makes each ship his "baby" and he will try to take charge of servicing it whenever it is in port.

What a salesman has to do to fulfill the widely differing electrical requirements of various ships is never a picnic, because with the exception of the war-born ships, such as C-2 freighters, practically every ship is different—each presenting individual problems to the salesman of marine supplies.

Here's specifically what he's up against. Until Pearl Harbor, most ships were constructed abroad. For that reason, most of the electrical systems on shipboard are unlike ours, with each part and each circuit designed according to the accepted practice of its home country. And with the United Nations using ships built in England, France, Denmark, Norway, Germany, Holland, Poland, a wide variety of conditions are encountered when foreign ships need electrical servicing in an American port.

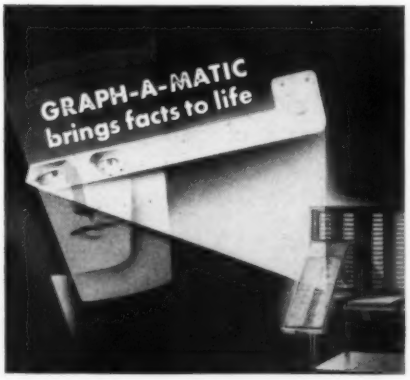
Then, whether the ship is a freighter, or transport, or a tanker, it will have electrical problems peculiar to its type.

And to get a better view of what this wholesaler must service when the ship reaches port, let's take a "landlubber's" look at what constitutes a ship. It is all or many of these: a floating warehouse, with explosion-proof wiring, interior floodlighting; fire detectors, alarms, winches—a floating hotel, with kitchens, bedrooms, bathrooms, living-rooms, all adequately lighted—a sea-

Now plying the seven seas to transport the men and materiel of war—but one day these merchant ships will be the nucleus of a large peace-time merchant marine, with ships coming in for service and repair at hundreds of ports along the country's vast coastline. Then even more wholesalers and salesmen will be helping to "keep 'em sailing" by efficient servicing of their electrical equipment. Photo of African-bound convoy by Press Association, Inc.

Now... A BLUEPRINT for the Sales Manager

Some day soon, broad-scale changes in product, in markets and in buying habits will confront sales managers with a whole new set of sales management problems. Actually, in its preliminary aspects, the race for post-war sales is on right now, and there is every indication that as it has in the past, success will in the future *depend in large measure on organized facts*. Because the provision for obtaining sales facts and maintaining them in the most highly useful form is a prerequisite of efficient sales operation, Remington Rand offers a handy blueprint on "3 Ways to Build Sales in Post-War Markets." This book has been prepared carefully in the light of wide experience in serving a substantial portion of the nation's business firms through our Systems and Methods Technicians. It boils down into twenty readable pages the principle points to be considered, the means to each objective and demonstrates clearly and in detail the actual forms in which the Sales Manager can best obtain the major and vital elements of control he requires. Due to the "Fact-power" generated by the exclusive Kardex System of Management Control, these forms furnish in many ways the most compact sources of information ever devised. We urge you to get this book—it's free—today.



TEAR OFF AND MAIL

Remington Rand, Systems Division, Buffalo 3, N. Y.
Send me without obligation, a copy of your New Book "3 Ways to Build Sales in Post-War Markets".

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WS-3

SYSTEMS DIVISION
REMINGTON RAND
Buffalo 3, New York

A Rush Order that Must Be Filled to Keep a Ship Sailing

2 Bells, Alarm 120 v.
4 Plugs, Cargo for Plug Box
6 Caps and Chains for Plug Box
2 Plugs, 3 Wire
2 Interiors for 3 Wire
3 Clusters, Cargo, Single
4 Flashlights, Spot Type
30 Flashlight Batteries, 3 Cell
15 Flashlight Bulbs, 3 A
10 Fuses, Cartridge, Midget, 10 A ——— Co.
10 Fuses, Cartridge, Midget, 30 A ——— Co.
16 Fuses, Glass, 10 — 3A and 6 — 6A ——— Co.
100 Refills for Fuses, Cartridge, 10 —— 15 amp. 50 each
2 Interiors, Black-out Switch
2 ——— & ——— Co., Cat. No. C.M.N. — 8
12 Plugs, Attachment
6 Sockets, Pigtail
6 Socket Adaptors, Mogul
4 Rolls — Tape, Friction
4 Rolls — Tape, Rubber
150 (ft.) Wire, Cable, Portable, 2 Wire
24 Brushes, Fan, with Springs
36 Lamps, Mazda, 40 watt, T-10 Candle Type
24 Lamps, Mazda, 25 watt, T-10
120 Lamps, Mazda, 50 watt, Rough Service
24 Lamps, Mazda, 75 watt A

Another actual order just as received by an eastern wholesaler. These items, plus many more, will have to be located and delivered in a hurry before the ship sails.

going steam plant, with fire and smoke control apparatus, electric gauges, controls, etc.—a central station, with generators, distributing systems, control panels—a radio station, with transmitters, receivers, and maybe a direction finder. And then there are the communication systems, telephone, public address, light signalling system, etc.

Supplying any of this equipment or its components at short notice is the job facing the marine wholesaler's salesman when a ship reaches port. Having an exceptionally varied stock to draw on, and the facilities for obtaining quickly any other necessary materials or equipment are therefore prime requisites if a marine wholesaler expects to make it profitable for himself and his salesmen, to work in this field.

The Salesman at Work

Particularly during wartime, the "keep 'em sailing" salesman must expect to live a "feast or famine" existence. One day, or perhaps for days on end, he must be a mass of tireless energy, working without regard for hours—striving only toward completing his job before the ship is scheduled to sail. Then there will be other days with nothing to do but clearing up odds and ends—or for that matter, he may go to a ball game.

The salesman in this field gets his accounts from the ship owners, his formal purchasing orders and priorities from the purchasing agent—*but he gets all actual orders on board ship*. His success depends on his familiarity with the electrical requirements of each ship he services, his acquaintances with the men on board ship, and his ability to produce or improvise the needed material in time for the ship's scheduled date of sailing.

The salesman boards his ships as soon as they arrive in port. There he sees both the chief electrician and the ship's storekeeper. With the electrician he may go over any part of the vessel, studying needed repairs and suggesting materials or equipment (based on knowledge of materials in stock and manufacturers delivery dates) that will do the repair or replacement job. Or he may have to study foreign-made equipment to devise a method of adapting American-made parts or materials to do the job.

Of great help to the salesman in this work are the records kept by himself or his firm. They are a chronological record of work that has been done to the ship, and are kept according to each ship and not by owner or operating company. Marine salesmen consider them invaluable in facilitating speedy and efficient servicing of a ship.

To meet the requirements as marine wholesaler's salesmen, according to a large Eastern wholesaler recently, ". . . first, a man must be the best darned wholesaler's salesman available, and then on top of all his regular knowledge and experience, he must know about all there is to know about marine supplies and about the individual ships he handles. He must be a super-specialist."

Worth mentioning as a sidelight on the characteristics of a typical marine salesman is the deep affection which he holds for each of his ships. It is very much akin to the feeling which sailors hold—personalizing the ship as "she" and attributing to "her" all the individual characteristics of a lovable but temperamental lady. One wholesaler states that his salesmen practically go into mourning for a lost ship, when the news of a sinking comes through.

The Organization Back of the Salesman

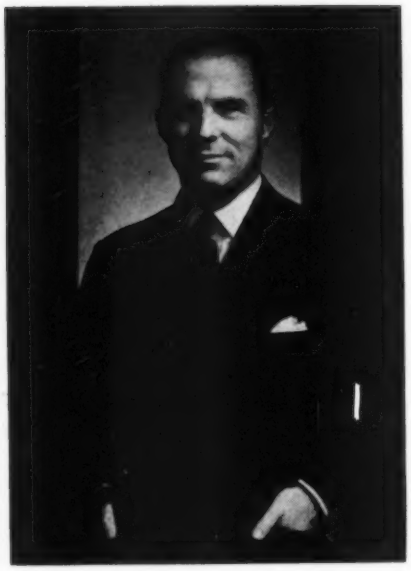
In order to do a satisfactory job of servicing ships, the salesman must have back of him an organization which is adequate to the broad requirements of this field. The wholesaler must have an adequate stock of the electrical supplies most often needed for immediate servicing of the types of ships handled.

There must also be available for the salesman, the facilities and inside help needed for getting hold of the desired non-stock electrical equipment in a hurry. The inside men must be trained to work with the same speed and determination as the salesman, and must be imbued with the same feeling of responsibility for the ships they are servicing.

And then, both the inside men and the salesman must have a good knowledge of nearby stocks of other than electrical products and supplies. At any time, a ship's electrician may include in his order some materials which he may use in connection with work other than on the ship's electrical system, and which are items not usually carried in stock by an electrical wholesaler. This may mean that the marine wholesaler may have to shop around for many things from special paint, flypaper, bakelite sheeting, to strings for the engineer's guitar, in order to be sure that everything will be ship shape before sailing.

Equitable Distribution in Canada

Originated by a Canadian Government agency as a wartime necessity, this Equitable Distribution Plan is not operated by official orders but through informal directives, and its controls are self-liquidating



R. F. Chisholm

ONE of the most interesting features of the Canadian distribution plan is that it is one of the few controls which is self-liquidating. It disappears at the very moment and at the very place where it is no longer required, and does not need argument, discussion, meetings, or a rescinding order. The distribution control applies to goods in short supply, which means goods on which the supply does not equal the demand. As soon as the supply does equal the demand, the control automatically disappears.

The same factors of decreasing production and increasing demand which necessitated price control, also called for some kind of distribution control. The first Board statement of policy in 1941 and subsequent statements in 1942 stipulated that all suppliers must maintain equitable distribution on goods in short supply and avoid diversion from regular trade channels. This general policy sufficed for the first year of price control but towards the end of 1942 a more precise plan was required and adopted. It was further strengthened by an order of the Board prohibiting the extension or opening of a new business.

The distribution plan has never been expressed in the form of an order. For the most part it operates by informal directives. Where necessary, administrators issue official directives which can be enforced legally.

Features of the Plan

All suppliers must follow 1941 distribution pattern for goods in short supply.

Main variation stipulated is for specific list of places which are designated to have major increases in population (as shown by ration books) in B. C., Northern Alberta, Nova Scotia, and one area in Quebec.

Minor population changes since 1941 not considered.

Population increase such as in Ottawa not considered to warrant a quota increase where the country as a whole has increased negligibly.

The purchaser of a business will in general inherit the quotas of his predecessor.

In a small town, continuing retailers will inherit the quotas of stores closed.

Where 1941 can be demonstrated to have been a "freak" year in buying by a retailer due, for example, to heavy carry-over from 1940, quotas may be adjusted.

Where suppliers have gone entirely on to war work, or have shut down, the "orphaned" retailers may be assigned quotas for other sources.

Increased purchasing power (rather than real need) which is the cause of most claims for consideration, is not considered a valid reason for quota changes.

Only civilian population is considered and proximity to military camps is not considered a reason for increased quotas.

Poor credit history is not accepted as a reason for diversion of supply—but suppliers may stipulate cash terms if they wish.

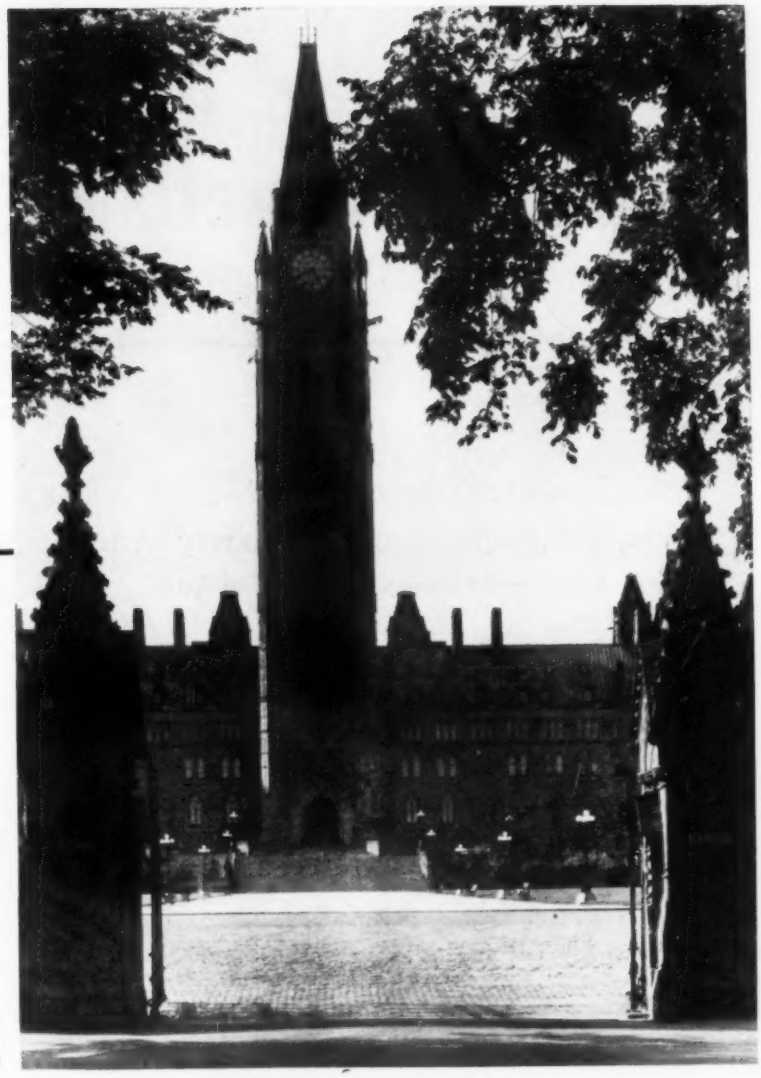
There are numerous other rules similar to the foregoing which are used in dealing with cases, and which are covered in a special memorandum to administrators. A pattern and precedent have now been established to cover most "type" cases.

Results

With a minimum of control and disruption of normal distribution routine, results to date have been most satisfactory. Careful study

By Robert F. Chisholm

Co-ordinator; Distributive Trades
The Wartime Price and Trade Board
Toronto, Ontario



Parliament Building, Ottawa, Canada

indicates general equity and satisfaction in the trade.

Quotas have been adjusted for a few areas and for a few individual retailers and wholesalers, and special shipments have been made to some areas.

Most important however, is the technique of dealing with hardship cases, either among retailers or consumers. Without any announcement, a procedure has been adopted whereby the regional offices will see that cases of distress are given priority on stocks on hand or next shipment received.

Of the many cases investigated, very few turn out to be real hardship cases requiring special attention; not more than about six per week in Montreal, Toronto, Winnipeg, Halifax, etc.

Most newspapers are now cooperating by turning over to the Board any case which comes to their attention, before making a sob story out of it.

Even so, there will continue to be some hardship and some criticism. But we feel we should be prepared to accept this to a moderate degree in preference to embarking on the elaborate rationing system which is the only alternative for textiles or hardware items.

In distribution control as in price control, the majority of cases handled are due to misunderstanding of the regulations and are cleared up by explanation and do not require explicit action.

We are endeavoring to have it understood by the trade and public that—distribution in general is fair—unfair cases or hardship cases should be reported *specifically* and *accurately*.

It is not possible to act on general comments.

Special techniques have been employed from time to time to cover specific items such as small arms ammunition, electric stoves, farm implements, canned vegetables, dried fruits, evaporated milk, hearing aid batteries, underwear, raincoats, oranges, films, bathtubs, hospital supplies, and hotel cottons.

Conclusions

Distribution is reasonably equitable as between areas and between types of trade and consumers. Small retailers are getting their fair share. Hardship cases can be dealt with promptly.

Shortage corrections in most essential lines have been undertaken by development of satisfactory production schedules for the industry concerned.

The distribution plan, even with some imperfections, is much preferable to rationing of canned goods, textiles, confectionery, and other products. Manufacturers and wholesalers have done a really outstanding job of handling the distribution problems of wartime. It is most significant that our normal distribution mechanism has stood up well and has been able to take care of the stresses and strains of emergency conditions. This is at least one demonstration of how business is able to handle its own problems with a minimum of central direction.

A Manufacturer's Agent Appraises

With his wartime record making, the wholesaler's peacetime position secure, large appliance sales, heavy orders for reconversion, residential wiring standards raised to No. 6 wire, 100 amp. service switches, vast farm sales are seen as major factors in future volume building

THE present position of the electrical wholesaler must be looked upon as one of great importance to the maintenance of our "War Machine" on its present high plane of production. The manufacturer is doing a successful job of producing essential materials, but it must remain for the distributor, everywhere, to be prepared with local stocks for any and all emergencies. An important function of the distributor is one whereby he can locate practically everything required by the manufacturers promptly. These manufacturers are mindful of this service and recognize the many hours saved because of this service.

There can be no successful contradiction of the fact that the wholesaler has kept step with the many and modern processes of operation which have demanded materials in quantities never experienced before in either wartime or at the height of prosperity during years of peace. These demands were accompanied with the demand for prompt deliveries. The distributor has enlarged his inside organization; he has added new plans of approach to his sources of supply with most satisfactory results. Many distributors have established a special department of so-called "roving ambassadors" who are constantly in touch with their suppliers. The result of this work has been recognized by those industries that are greatly benefited because of this close application to the matter of service.

Let us be done with this periodical revival of this old chestnut as to the importance of the electrical distributor in the commercial field. Our economy has developed to a point of stability that bespeaks nothing but a definite and rapid advance of high levels of production.

Some reliable financial sources predict demand for new capital by industry, after the peace has come, which will run as high as $5,000,000,000.00 per year for a number of years. We are all familiar with restriction placed on public utilities, railroads, etc. during the war period. In most cases these giant industries have been restricted to the absolute requirements for the maintenance of present equipment. It must be taken for granted that billions will be spent by these heavy utilities annually to bring their equipment up to standard of expansion needs, as well as currently restricted maintenance. These definite post war projects will also require new capital.

There can be no room for doubt as to the availability of necessary funds to carry on post-war activities. It is only necessary to study the opinions of men high in finance, industry and production. The Department of Commerce has given the statistics on the steady increase in savings by individuals and industry. A large portion of these savings will find their way into production channels of pre-war as well as new products. All of this new capital will mean greater production, and this production must pass through the hands of the distributor.

Everyone is mindful of the uncertainties which existed after the first World War. It must be taken for granted that every precaution will be taken to avoid the pitfalls which brought about the downward spiral of industrial activity following the above mentioned first World War. It is only necessary to scan the pages of nationally recognized publications to feel assured that we will not be unprepared for the change over from wartime to normal production and distribution of peace-time commodities.

By the grace of God we in the Americas have not been subjected to the almost total destruction of our coastal areas and inland metropolitan centers, as is the case in England, France, Germany and Russia. The possible destruction of Japan, the Balkans and most of the Far East is a definite possibility before

*McKinley-Mockenhaupt Company
Chicago, Illinois

By Leo G. Mockenhaupt*

The Wholesalers' Business Outlook

this terrific struggle will end. There are many who believe that the rehabilitation, or at least a greater proportion of this work, will require materials produced in this country. That is a big order, and will require many years to complete.

Now let us look at the picture as we will undoubtedly find it here at home. We all must realize that a vast amount of wealth has been acquired by the so-called "average citizen." This accumulation in most cases has been invested in government bonds. We will also find many savings and drawing accounts in all banks throughout the nation, which are of far greater dollar volume as well as numerical number than existed before the war. All of this accumulated wealth will be ready for commerce just as soon as the conversion from war to peace-time production can be accomplished.

The deeper one gets into this matter of post-war activities, the greater does the responsibility of the distributor appear. At the present time the condition of the distributor's stock is confined to strictly war-time necessities. To get somewhat of an idea of actual conditions even today one need only to approach a distributor or one of his dealers and ask for a toaster, a flat iron, or any type of an electric appliance. Or perhaps you will want to buy a socket or a switch, or maybe a convenience outlet. None of this material is available. There is no limit to the list of electrical materials which are not available to the consuming trade today, and will not be for the duration.

Millions of electrical appliances which were stored in the attic have been dusted off and traded in for war bonds and stamps. All of them have been reconditioned and are in use at the present time, but they will all be ready for the scrap pile before production will again be resumed by the appliance manufacturer.

Let us look into the future requirements of a post-war average American home. It has been recognized by the utilities that their greatest source of additional load will come from the home building program. The post-war home will undoubtedly be furnished with a minimum of No. 6 for service. There are a great many who rightly hold that heavier wires than No. 6 should be used, and that a service switch of 100 Ampere capacity with 20 Ampere branch circuits be adopted. These recommendations are not new. They have been advocated for some years past. As a matter of fact, the sale of 100 Ampere service switches has multiplied a number of times during the past several years.

There can be no question as to the value of the distributor during the past two years. By the results of localized distribution, as witnessed over a period of 40 years, it can be definitely demonstrated that the future of the distributor is far more secure after the duration than it has been at any time since the distributor came into existence.

Let us also crystal gaze into the rural districts. On every hand we find the farmer working harder and with less help and less conveniences than were available before the war. The distributor is going to find a flood of business coming from his small town contractor, dealer customers. This field will have to be covered very thoroughly because of the many new electrical developments which will call for highly constructive sales effort. Certainly, the manufacturer can not and will not do this missionary work. It falls squarely on the wholesaler, it is his responsibility.

I do not want to venture an estimate on the value of war-time industrial machinery. Suffice it to say that the great American War Machine is now producing on an almost unbelievable basis, and that it is contributing greatly to the victory which will be ours.

From many sources comes the accepted fact that the reconversion from production of war material to normal peace-time materials will require almost total change of machinery, tools and other appurtenances. The requirements of supplies for this job will be tremendous. Emergency requests will come to the distributor for this and that. He must be prepared to take care of these requirements if the progress of reconversion is to be accomplished with the least possible delay.

A great deal will depend on the reconversion and surplus disposal problems. There are many who will remember the disastrous effects on business because of the dumping of war materials following the first world war. There must be a sound program of liquidation of both plants and materials, in which industry must be prepared to accept their share of the losses. Such a program might well be worked out between government and industry with the least possible repercussion.

With such a program prearranged there can be no question but what the future of the wholesaler will be assured on a basis of far greater volume than existed at any time prior to the outbreak of the present conflict.

The CAMERA CLICKS on a

DAY AND NIGHT, every day of the week, every week of the year, ever since Pearl Harbor, electrical wholesalers and their salesmen have been working diligently, untiringly, to supply our war plants, first with what was needed to get them into production, then to supply them with those thousands of items, large and small, that are constantly needed by every industrial plant, to keep the wheels turning.

Those wholesalers and salesmen will keep on doing their unsung service jobs until that great Unconditional Surrender Day, when our enemies will have been crushed completely.

Meanwhile **WHOLESALER'S SALESMAN** has frequently tried to bring together enough good photographs to tell the wholesaler's story in pictures but never could get more than factual data.

We are obliged to Mr. Fred H. Pinkerton, Public Relations Counsel for the National Electrical Wholesalers Association for this group of pictures which show just a single instance of actual emergency service by an electrical wholesaler. That piece of service helped to prevent at least a temporary shut-down of an important segment in one of the vital war plants.

3 *REQUIREMENTS of one of the country's most important aviation plants is studied by Schielke in the office of Purchasing Agent Charles Zanglein. Schielke "sold" this company in the old days—today he is the typically-transformed wholesaler's salesman, "servicing" his customers, expediting deliveries, locating materials.*

4 *AN EMERGENCY has arisen. Chief Electrician Charles Little rushes in the news that a 440 volt lighting transformer has broken down, and is delaying work in the room where the important work of grinding propellers for warplanes is handled. Schielke offers to call Watson-Flagg for a replacement transformer.*

7 *IS IT BUSINESS? Yes, the Watson-Flagg driver could say, it's the business of keeping American pilots supplied with planes. Guards pass driver Ralph Allen after seeing his credentials and taking a precautionary look at the road.*

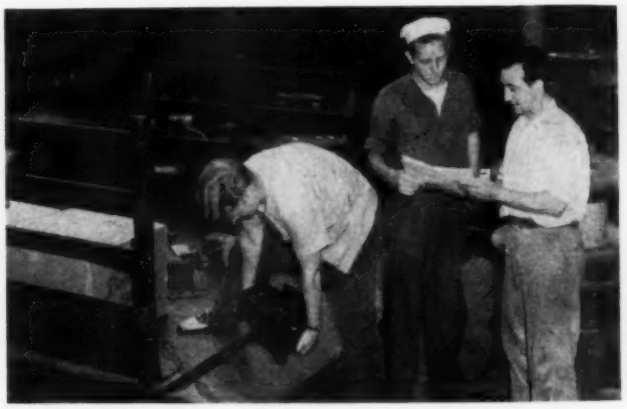
8 *ON ITS WAY to help keep the propellers spinning. The driver and Neil Brun, Curtiss-Wright receiving clerk, carry the transyormer while guard; and David Almroth, plant engineer; and Charles Little, chief electrician, look on.*

War-time Wholesaler in Action

1 *OFF TO THE WAR plants. A. Crew Schielke, representing Watson-Flagg Sales Corp., electrical wholesalers of Paterson, N. J., covers the many war production plants of northern New Jersey.*

2 *ROUTINE EXAMINATION of his briefcase at his first call, the propeller division of the Curtiss-Wright Corp., Clifton, N. J. His frequent visits make him a well-known figure to the guards.*

5 *SUCCESS is apparent on the face of Schielke as the office tells him a 440 transformer can be sent out immediately by truck. Through long experience, Schielke would have known how to go about locating a transformer at another wholesaler's quickly if there were none available at Watson-Flagg.*



6 *IN NEW YORK the transformer is checked out and loaded on a small delivery truck for the rush trip to Curtiss-Wright. Wholesalers today are avoiding such special handling and extra trips whenever possible except in such emergencies as this when a vital war job depends on a quick delivery and special attention.*

9 *"GOOD WORK" was the comment made by purchasing-agent Zanglein over the phone to the late H. W. Desaix, president of Watson-Flagg, who died recently. Like most war-plant executives, Zanglein has long experienced the essential services rendered by the electrical wholesalers and salesmen, Schielke has long since left to help customers in other war plants.*

Wholesalers' New Inventory Form WPB-547 (PD-1X)—Interpreted

New form still permits application on dollar basis and grouping of commodities. Wholesaler's figures based on any one of about four recent years. Ratings may be held for future rush purchases

WHOLESALERS may begin using the new PD-IX form, WPB-547, or continue to use the old form until April 1. On the new form most of the explanations are very clear. A wholesaler must now tell them if he has unfilled orders with manufacturers covering previous approval for the same material. That is only fair. In column C, the wholesaler gives them a year's sales of the material wanted. Take any recent year. If the inventory date is April 1, take a year from April to April. They only want to know the normal annual movement of the goods wanted. It is still permissible to make application on a dollar basis and to group the various commodities.

For the average wholesaler the following groupings will cover everything subject to 547 priorities: wiring devices; safety switches; motor controls; condulets; unilets; outlet boxes and covers; other conduit fittings; No. 6 ignitor, telephone, and hot shot batteries; thin wall conduit; rigid conduit; fuses; and cord sets.

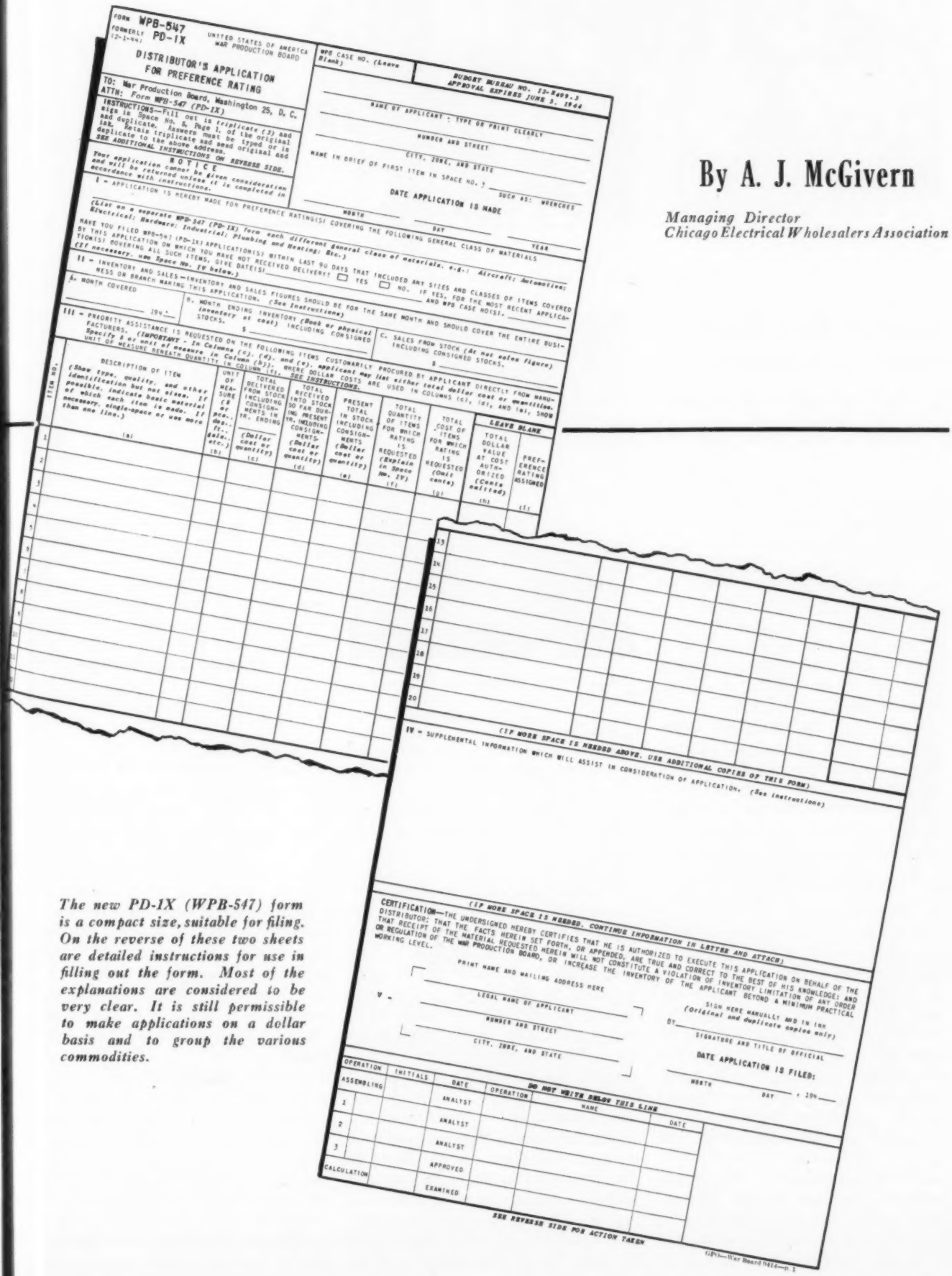
The proposal had been made to revise this form in a way that would require the wholesaler to give the sales and purchases of each item. We can thank the Electrical Wholesalers Advisory Committee for this simplified and workable revision. An AA-3 rating will be given on everything and only the regular sales restrictions will apply.

Here are some interesting features on the new PD-1X form:

First, a wholesaler can pick out any one of about four recent years which he thinks represents his normal business and base his figures on that year. This grouping of commodities will save wholesalers a lot of work. Wiring devices cover practically everything that is in the Bryant catalog. Now it is not too hard for a wholesaler to get his figures on this group. He has his inventory of January 1, 1942. He needs only to run through it, check the items in the wiring devices group as they are extended. Then just have a comptometer operator add them up, get out the bills for the year on wiring devices and add them in the same way. He then computes the totals in the same way on the 1943 inventory. When this is subtracted, the wholesaler has the total cost of all wiring devices sold that year. Now this job only has to be done once for the same figures will be used on all subsequent applications for wiring devices.

A. J. McGivern

When a wholesaler receives approval on a dollar value basis, he can buy anything in the classification that he wishes, and he can keep priorities in the bank so that he can buy material for those rush pick-up jobs. If the revision had gone through when first proposed, the wholesaler would have to go through his records on each individual item. Of course, very few wholesalers have kept stock records. When approval was received, the wholesaler could buy only those particular items. This grouping arrangement is the important thing for the wholesaler for when he receives approval on this basis on all of the groups, he is in a position to buy anything that he wants for stock.



FORM WPB-547
FORMERLY PD-1X (2-1-44)
UNITED STATES OF AMERICA
WAR PRODUCTION BOARD

DISTRIBUTOR'S APPLICATION FOR PREFERENCE RATING

TO: War Production Board, Washington 25, D. C.
ATTN: Form WPB-547 (PD-1X)

INSTRUCTIONS—Fill out in triplicate (3) and sign in Space No. 5, Page 1, of the original and duplicate. Answers must be typed or in ink. Retain triplicate and send original and duplicate to the above address.
SEE ADDITIONAL INSTRUCTIONS ON REVERSE SIDE.

NOTICE
Your application cannot be given consideration and will be returned unless it is completed in accordance with instructions.

WPB CASE NO. (Leave Blank)

BUDGET BUREAU NO. 12-R499.1
APPROVAL EXPIRES JUNE 5, 1944

NAME OF APPLICANT: TYPE OR PRINT CLEARLY

NUMBER AND STREET

CITY, ZONE, AND STATE

NAME IN BRIEF OF FIRST ITEM IN SPACE NO. 2 SUCH AS: WRENCHES

DATE APPLICATION IS MADE
MONTH DAY YEAR

I – APPLICATION IS HEREBY MADE FOR PREFERENCE RATING(S) COVERING THE FOLLOWING GENERAL CLASS OF MATERIALS
(List on a separate WPB-547 (PD-1X) form each different general class of materials, e.g.: Aircraft; Automotive; Electrical; Hardware; Industrial; Plumbing and Heating; Etc.)

HAVE YOU FILED WPB-547 (PD-1X) APPLICATION(S) WITHIN LAST 90 DAYS THAT INCLUDED ANY SIZES AND CLASSES OF ITEMS COVERED BY THIS APPLICATION ON WHICH YOU HAVE NOT RECEIVED DELIVERY? ☐ YES ☐ NO. IF YES, FOR THE MOST RECENT APPLICATION(S) COVERING ALL SUCH ITEMS, GIVE DATE(S) _____ AND WPB CASE NO(S). _____
(If necessary, use Space No. IV below.)

II – INVENTORY AND SALES—INVENTORY AND SALES FIGURES SHOULD BE FOR THE SAME MONTH AND SHOULD COVER THE ENTIRE BUSINESS OR BRANCH MAKING THIS APPLICATION. (See Instructions)

A. MONTH COVERED _____ 194_

B. MONTH ENDING INVENTORY (Book or physical inventory at cost) INCLUDING CONSIGNED STOCKS. $ _____

C. SALES FROM STOCK (do not enter figure) INCLUDING CONSIGNED STOCKS. $ _____

III – PRIORITY ASSISTANCE IS REQUESTED ON THE FOLLOWING ITEMS CUSTOMARILY PROCURED BY APPLICANT DIRECTLY FROM MANUFACTURERS. (IMPORTANT - In Columns (c), (d), and (e), applicant may list either total dollar cost or quantities. Specify $ or unit of measure in Column (b); WHERE DOLLAR COSTS ARE USED IN COLUMNS (c), (d), and (e), SHOW UNIT OF MEASURE BENEATH QUANTITY IN COLUMNS (c), (d), and (e). SEE INSTRUCTIONS.)

ITEM NO.	DESCRIPTION OF ITEM (Show type, quality, and other identification but not sizes. If possible, indicate basic material of which each item is made. If necessary, single-space or use more than one line.) (a)	UNIT OF MEASURE ($ or pcs., lbs., ft., gals., etc.) (b)	TOTAL DELIVERED FROM STOCK INCLUDING CONSIGNMENTS IN TH. ENDING (Dollar cost or quantity) (c)	TOTAL RECEIVED INTO STOCK SO FAR DURING PRESENT MO. INCLUDING CONSIGNMENTS (Dollar cost or quantity) (d)	PRESENT TOTAL IN STOCK (INCLUDING CONSIGNMENTS (Dollar cost or quantity) (e)	TOTAL QUANTITY OF ITEMS FOR WHICH RATING IS REQUESTED (Explain in Space No. IV) (f)	TOTAL COST OF ITEMS FOR WHICH RATING IS REQUESTED (Omit cents) (g)	LEAVE BLANK: TOTAL DOLLAR VALUE AT COST AUTHORIZED (Cents omitted) (h)	LEAVE BLANK: PREFERENCE RATING ASSIGNED (i)
1									
2									
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20									

(IF MORE SPACE IS NEEDED ABOVE, USE ADDITIONAL COPIES OF THIS FORM)

IV – SUPPLEMENTAL INFORMATION WHICH WILL ASSIST IN CONSIDERATION OF APPLICATION. (See instructions)

(IF MORE SPACE IS NEEDED, CONTINUE INFORMATION IN LETTER AND ATTACH)

CERTIFICATION—THE UNDERSIGNED HEREBY CERTIFIES THAT HE IS AUTHORIZED TO EXECUTE THIS APPLICATION ON BEHALF OF THE DISTRIBUTOR; THAT THE FACTS HEREIN SET FORTH, OR APPENDED, ARE TRUE AND CORRECT TO THE BEST OF HIS KNOWLEDGE; AND THAT RECEIPT OF THE MATERIAL REQUESTED HEREIN WILL NOT CONSTITUTE A VIOLATION OF INVENTORY LIMITATION OF ANY ORDER OR REGULATION OF THE WAR PRODUCTION BOARD, OR INCREASE THE INVENTORY OF THE APPLICANT BEYOND A MINIMUM PRACTICAL WORKING LEVEL.

V – PRINT NAME AND MAILING ADDRESS HERE
LEGAL NAME OF APPLICANT
NUMBER AND STREET
CITY, ZONE, AND STATE

SIGN HERE MANUALLY AND IN INK. (Original and duplicate copies only)
BY _____
SIGNATURE AND TITLE OF OFFICIAL

DATE APPLICATION IS FILED:
MONTH DAY , 194_

DO NOT WRITE BELOW THIS LINE

OPERATION	INITIALS	DATE	OPERATION	NAME	DATE
ASSEMBLING		ANALYST			
1		ANALYST			
2		ANALYST			
3		APPROVED			
CALCULATION		EXAMINED			

SEE REVERSE SIDE FOR ACTION TAKEN

GPO—War Board 9414—p. 1

By A. J. McGivern

Managing Director
Chicago Electrical Wholesalers Association

The new PD-1X (WPB-547) form is a compact size, suitable for filing. On the reverse of these two sheets are detailed instructions for use in filling out the form. Most of the explanations are considered to be very clear. It is still permissible to make applications on a dollar basis and to group the various commodities.

Salesmen's Fox-hole Tales From the Wholesaler's Battle Front

Ingenious Moon Stages "Blitz" on Substitutes—Lands Lightning Rod Job

Just as an example of why the wholesaler's salesman of today is not simply a salesman but a "doer" of various and sundry jobs on war projects that nobody else has the time or knowledge to tackle, take the case of C. A. Moon, salesman working out of the Graybar electrical supply house at a place designated . . . .

In his territory was a Navy project which involved the erection of a group of large buildings, the largest being 200 ft. by 600 ft. The Navy general specifications called for the fitting of these buildings with lightning protective equipment. There were accompanying building plans showing where the conductors were to be run on the buildings and where the lightning rods or points and the lightning grounds were to be established. There were also some general specifications as to the materials to be used.

It so happens that the project is in a territory where there is very little lightning, and lightning rods are almost never used. As a consequence, nobody around there, including the contractor and local architect, knew anything very specific about lightning protection. But since lightning is electricity, and since it can be inveigled at times into passing along a conductor when it finds same convenient, it was assumed that an electrical wholesaler's salesman would know all about such things. So they called Moon in and dumped the problem of securing the necessary materials in his lap.

Salesman C. A. Moon was no Benjamin Franklin when it came to lightning rods, but he did have the inherent knowledge of the wholesaler as to where to find things electrical, how to start action and how to get results quickly.

When it came to lightning rods, Moon himself was no Benjamin Franklin. He knew no more about the subject than the rest of them. But he did have that inherent knowledge of the wholesaler as to where to find things electrical, how to start action and how to get results quickly. He knew that in the eastern and middle western sections of the country, where protection against damage from lightning is more commonly used, there are manufacturers of such equipment. Through the wholesaler's regular channels of information he was able to locate half a dozen and obtain their catalogs. His first job was then to study these and familiarize himself with the equipment and how it is installed, and here he soon struck a stone wall because the special copper conductor, the copper points and the grounds, as well as much of the fastening equipment were found to be unavailable at this time.

The second problem was to devise substitutes out of materials in stock or obtainable upon order from their regular supply sources, securing only such fittings as were readily available from the manufacturers of lightning protective equipment. After his study of the systems, he decided that ordinary guy wire might be substituted for the star-section copper rod; that Copperweld ground rods could be used for the lightning rod grounds, while Copperweld ground rods of another size could be adapted to make points. Then he had the backbone of his system.

Chore number three was to make a detailed study of the building plans and see how he could mount the cable and points on the building and hold them in place. The cable presented a problem because, being flexible, it would have to be pulled up taut and held so by means of adaptations of the regular hardware he had in stock. There were concrete ledges to get around, roofs through which a staple could not be driven and all sorts of other obstacles in the path of an improvised system. But he at last got them all licked.

Then it became necessary to put these plans into tangible form, with instructions and sketches showing the materials to be used and how they were to be put together, so that the local architect's approval could be obtained for the substitute installation.

The next step was to take the plan to the contractor and explain just

how everything was to go together. And the contractor's first step—yes, you have guessed it—was to say: "It's fine. Everything is clear. But you know, this is a little unfamiliar to our boys. When the time comes, I think you had better be out here and see that the job goes along all right." So, the last step was to be on hand and practically foreman the job.

This piece of work was sandwiched in by Moon with all sorts of other problems—some easy, some complex like this one, and it is more or less the same with all other salesmen with all other electrical supply houses. True, what comes out of it is a bill of goods—a sale. But it is safe to say that with the majority of them the sale is no longer the incentive. The real thrill comes out of the accomplishment—getting the answer to a problem that would not arise if there were no war.

Later, they may foot up the total with some degree of satisfaction. In this particular instance, the big items ran to: Approximately 67,000 ft. of cable; 6500 ½" by 5 ft. Copperweld ground rods for points; several hundred ⅝" by 8 ft. Copperweld ground rods for grounds. In addition to these were all the items of hardware necessary to the installation.

Standing with President Leslie Strosser (second from right) is part of the Strosser Electric Company's staff who help that company "beat the promise" with deliveries ahead of time. Left, E. Robert Fleisher, Miss J. Jarrard, and, right, Willis Archibald.

Personal Attention and Tenacious "Follow-up" Helps "Beat the Promise"

Like "Man Bites Dog," deliveries made ahead of the specified date constitute news these days, particularly in the electrical wholesaling field. Leslie Strosser, president of the Strosser Electric Co., Seattle, Wash., tells of a large contractor in the Puget Sound Area who had a contract involving $100,000 of materials with Navy priority. With delivery dates firmly set, the company was able to beat the promise on all electrical materials by 30 days simply by careful planning and taking the following steps:

(1) First Strosser informed all important executives of the suppliers by telephone and telegraph of the importance of the work and the necessity for speed-up.

(2) Then he listed all the other orders the company had in with each supplier and analyzed them carefully. Then an agreement was reached with the supplier as to which ones or parts of them could be held back, giving the Navy order urgently needed precedence.

(3) As the final expediting step, the key men in the suppliers production and shipping departments were followed closely to facilitate the movement of this big order—production foremen and superintendents, shipping foremen and so on.

This type of planning, the wholesaler is able to do if he makes it a point to build up intimate personal acquaintance with men all down the line in the manufacturer's organization. Through the benefits gained from those contacts he will get better attention than any other type of customer.

Wholesaler's Persistence Plus After-Hours Labor Saves Days for War Plant

Some fast base-running plus a couple of "steals" scored recently in Chicago, where the Steiner Electric Company was able to prevent a two- or three-day shutdown in a factory that makes urgently-needed instruments for airplanes. George S. Steiner, president and treasurer of the wholesaling firm, tells the story:

"At 11 o'clock one Saturday morning, a Navy officer in charge of operations at the instrument plant 'phoned us for a special mercury switch to replace one that had been broken. He had called the manufacturer of the switch, only to find that it would take at least two weeks to get delivery. In the meantime operations were at a standstill.

"We were able to locate a similar switch in the warehouse of an electrical manufacturer whose plant is in the suburbs of Chicago, but which regularly closed at noon on Saturdays. The Navy officer rushed through a purchasing order, but even by then the warehouse with its precious switch was closed for the week-end.

"A supervisor of the telephone company was enlisted to try every phone and department of the manufacturing plant to locate someone in authority. After some time a man was located in the shipping department but he had no authority to accept orders or to give out any merchandise.

"However, he was eventually convinced of the urgency. He located the switch and took it to the chief guard at the factory entrance with instructions to deliver it to our messenger.

"The entire cost to the war plant was $2.80. Yet, the procurement of this small item enabled this important factory to continue operations throughout Saturday night and Sunday, and probably avoided a much longer delay."

Recent WPB Orders and Revisions

Appliance Advisory Committee Meets

The recently-appointed Household Electrical Appliance Industry Advisory Committee held its first meeting in Washington on January 13. The official report of the meeting has not yet been released, but is expected soon.

The personnel of this Appliance Advisory Committee is as follows:

C. S. Powell, Graybar Electric Co., Inc., New York, N. Y.; F. R. Elliott, Jr., Elliott-Lewis Electrical Co., Inc., Philadelphia, Pa.; S. Rosenthal, Hyland Electric Supply Company, Chicago, Ill.; J. C. Harding. J. C. Harding & Company, Washington, D. C.; G. J. Timmerman, Midwest-Timmerman Company, Davenport, Iowa; C. R. Pritchard, General Electric Supply Corp., Bridgeport, Conn.; E. B. Ingraham, Times Appliance Company, Inc., New York, N. Y.; John McGregor, John McGregor Inc., Memphis, Tenn.; Edward Hacker, Detroit Edison Company, Detroit, Mich.; H. B. Donley, Westinghouse Electric Supply Co., New York, N. Y.; F. F. Brown, Broadway Department Stores Inc., Los Angeles, Calif.; C. J. Westrich, Sears Roebuck and Company, Chicago, Ill.

CMP-5 Amended

The War Production Board on the 8th of January issued the following amendment 3 to CMP regulation 5, section 3175.5:

"(1) Change the item 'II-Batteries, dry cells' to 'I-Batteries-dry cell' in the schedule attached to the regulation under the general heading 'Electrical Products.'

"(2) Change the item 'II lighting equipment and accessories, aircraft, airport and marine' appearing in the schedules of the regulation under the general heading 'Electrical Products' to read 'I Lighting equipment and accessories, aircraft, airport and marine.' Add the item 'II Lighting equipment and accessories other than aircraft, airport and marine' after the item 'I Lighting equipment and accessories, aircraft, airport and marine' appearing in the schedules of the regulation under the general heading 'Electrical Products.'

"(3) Change the item 'I Search lights, flood lights, spot lights and parts' appearing in the schedules under the general heading 'Electrical Products' to read 'I Search lights and flood lights.'

"(4) Change the item 'II Warehouses, public" appearing in the schedules under the general heading 'Conduct of the following business or activities' to read 'II Warehouses: public: dry and open storage.'

"(5) Add the item 'I, Warehouses, refrigerated; perishable food products' after the item 'Warehouses: public: dry and open storage' appearing in the schedules under the general heading 'Conduct of the Following Business or Activities.'"

Fan Committee Reports

Members of the Domestic and Commercial Electric Fan Industry Advisory Committee has reported through a release issued by the War Production Board that no production of electric fans for retail sales to civilians can be resumed now, and production of fans for essential industrial and hospital purposes cannot be increased enough to meet the demand under present restrictions.

Committee members stated that the industry cannot be re-opened for civilian production without detriment to the war work in which the industry is engaged. They recommended, however, that limitations on materials needed by the industry be relaxed sufficiently to permit the carrying out of a war emergency program for the production of 100,000 fans this year to fill military and export needs and as much of the essential industry and hospital demand as possible.

Machinery and Equipment Installation Controlled

The War Production Board issued last month the following direction pertaining to the installation or relocation of machinery and equipment, Conservation Order L-41.

(a) *Installing Processing Machinery or Equipment.* It is not necessary to get War Production Board permission under Order L-41 to install any piece of processing machinery or equipment, if the materials needed to install it cost less than $500 and it is to be installed in a factory, plant or other industrial unit having a productive floor area of 10,000 feet or more and the processing machinery or equipment is to be used for manufacturing, processing or assembling goods which are not listed in Schedule A of the Order. It does not make any difference how much the processing machinery or equipment costs. The term "processing machinery or equipment" as used in this paragraph means machinery or equipment which is directly used in the manufacture, processing or assembling of a product. It does not include such equipment as plumbing, heating or air conditioning equipment, which is not used directly in the manufacture, processing or assembling of the product.

(b) *Relocating machinery or equipment.* It is not necessary to get War Production Board permission under Order L-41 to relocate any piece of machinery or equip-

ment (whether used for processing or not) in a factory, plant or other industrial unit which does not manufacture, process or assemble goods listed in Schedule A of the Order and which has a productive floor area of 10,000 square feet or more, if the machinery or equipment has previously been used in the same plant, and the materials needed to relocate it cost less than $500. It does not make any difference what the value of the machinery or equipment is. This paragraph does not give a person the right to install a piece of machinery or equipment (whether new or second-hand) which he is installing in his plant for the first time as distinct from relocating machinery or equipment previously used in the same plant.

(c) *Applications.* Where permission to install or relocate machinery is required by Order L-41, application for such permission should be made on the appropriate form indicated on Schedule C of Order L-41. Also, such form should be used in applying for priorities assistance to buy installation materials where they can not be bought under this direction, even if permission to install or relocate is not required by L-41.

Small Order Rules Explained

The War Production Board issued the following interpretation regarding the effect of inventory and small order provisions on separate operating units of the same company:

(a) If an individual plant, branch store, division or other operating unit normally keeps separate inventory from the rest of the corporation or firm, inventory restrictions in WPB orders and regulations apply to it separately. Thus, although another unit may have exceeded an inventory limit, this does not prevent a unit which has not exceeded it from acquiring additional inventory within the limit.

(b) Likewise, if an order of the War Production Board provides an exemption for small purchases, an operating unit which normally buys separately need not consider purchases made by other units in determining whether it comes within the exemption.

(c) It may happen that the same operating unit will be treated separately for purposes of inventory restrictions but not for purposes of small order exemptions. For example, if a distributor purchases centrally for direct shipment to several outlets which keep separate inventories, the outlets are treated separately for purposes of inventory restrictions but the central purchasing agency must include all its purchases in determining whether a transaction comes within a small order exemption.

(d) This interpretation applies only in cases where a contrary rule is not expressly stated in the applicable War Production Board order or regulation. Also it only applies where the regular business practice of the unit in question is to keep a separate inventory or to buy separately. It does not apply if the regular practice has been changed just for the purpose of coming within this interpretation.

Split Ratings Direction Issued

The War Production Board on February issued the following direction governing split ratings:

"(a) The War Production Board has fixed a base rating which it will assign for use in ordering production materials for each product group. The same base rating will be assigned to each authorized production schedule covering the same product group. Higher ratings may be assigned by the War Production Board to a part of a production schedule to the extent that the application shows that higher ratings are merited. Two or more ratings assigned to a single production schedule are referred to as split ratings.

"(b) Split ratings must be applied on a class-of-item basis: that is, ratings must be split with respect to each class of production material. For example: if it is decided that $100,000 worth of bolts and nuts and $50,000 worth of wiring devices will be needed to be put into production during a quarter, and the preference ratings assigned to the schedules are 60 percent AA-2 and 40 percent AA-3, the AA-2 ratings may be used to buy $60,000 worth of bolts and nuts and $30,000 worth of wiring devices and the AA-3 rating may be used to buy $40,000 worth of bolts and nuts and $20,000 worth of wiring devices."

Also on the subject of split ratings, the War production Board issued the following direction 6 to CMP Regulation 3:

"(a) The War Production Board has fixed a base rating which it will assign for use in ordering production materials for each Class B product group. The same base rating will be assigned to each authorized production schedule covering the same product group. Higher ratings may be assigned by the War Production Board to a part of a production schedule to the extent that the CMP-4B application shows that higher ratings are merited."

Priorities Regulations 11 and 11a Revoked

On January 6th, the War Production Board announced revocation of Priorities Regulations 11 and 11a (Production Requirements Plan) as effective that day.

J. Joseph Whelan, recording secretary of WPB stated in his announcement that the revocation of the orders did not affect any liability incurred under the regulation. He said that the manufacture and delivery of products and materials remain subject to all other applicable regulations and orders of the War Production Board.

Repair Parts Order Interpreted

CMP Regulation 9A was interpreted by the War Production Board recently, as follows:

"Paragraph 9b of CMP Regulation 9A assigns a preference rating of AA-3 to a repairman to buy repair parts and materials for carrying on his repair work. The term "repair parts and materials" does not include any complete item ordinarily used by itself. For instance, a repairman can use the rating to buy grates which he requires in repairing furnaces, but cannot buy a complete furnace by use of the rating. Similarly, an industrial repairman could buy a gear to repair a lathe, but could not buy a complete lathe."

Remarkably CONVENIENT for

FOR FOUR 40-WATT
FLUORESCENT LAMPS

Yes, Sir . . . right up the line, the Curtis "Warrior" is a popular unit . . . the wholesaler likes the streamline packaging which makes for easy stocking . . . the contractor finds it easy to sell because of its many outstanding features . . . the electrician appreciates its flexibility adaptable for a variety of installations, and the customer goes for its attractive appearance, high efficiency and easy maintenance.

Full details and complete specifications are available in a newly issued bulletin. Write for your copy today.

FOR FOUR 40-WATT FLUORESCENT LAMPS

The New Curtis "WARRIOR"

CURTIS Lighting, INC.

6135 WEST 65TH STREET, CHICAGO 38, ILLINOIS

News Notes From N.E.W.A.

By Alfred Byers, *Secretary*
National Electrical Wholesalers Association

N.E.W.A.'S CHICAGO WAR CONFERENCE

During the past few weeks, considerable attention has been given to program preparation for the Association's War Conference to be held at the Stevens Hotel, Chicago, Illinois—April 19-22, 1944. More up to the minute reporting on this outstanding industry event will follow.

N.E.W.A. APPLIANCE DISTRIBUTOR MEMBERSHIPS

Through letters and many personal visits made by Managing Director Pyle and Secretary Byers, a large number of electrical appliance distributors were informed this past month about the plans for providing a separate division in N.E.W.A. for wholesale distributors in the electrical appliance field.

Interest in the Association's plans has been widespread. A number of the country's most progressive electrical appliance distributors are expected to attend the Chicago Convention as N. E. W. A. members so that they themselves can vote on the type of organization that should be provided in order that the greatest possible benefit to that (normally) important branch of the industry can be realized.

In order to stimulate the greatest possible participation in this highly important event, all N.E.W.A. members have been requested to enlist the active support—by membership—of the appliance distributors in their own immediate operating areas.

PACIFIC DIVISION, N.E.W.A. TO MEET IN SANTA BARBARA

Harry Perl, chairman of N.E.W.A.'s Pacific Division, has announced the selection of the Santa Barbara Biltmore at Santa Barbara, California, as the meeting place of the annual meeting of that division. The dates will be May 22–24, 1944.

Special Committees are in charge of arrangements to provide a program of discussion of interesting and timely topics such as have characterized Pacific Division meetings for many years. In addition to the many Pacific coast industry leaders who will be present, several prominent industry leaders from the East are planning to attend. Charles G. Pyle will attend the Pacific Division's meeting for the first time as the managing director of N.E.W.A.

ANOTHER SUCCESSFUL N.E.W.A. FORUM HELD

The February 14th forum meeting of N.E.W.A.'s Post-War Planning Committee, announced on this page last month, was a most successful one. Mr. Herbert Metz, the committee's chairman, arranged a program which required the entire day to complete. Every minute was intensely interesting and completely informative.

Special guest speakers were Frank Watts, electrical consultant of Farm Journal; Stanley Holme, General Electric Company, on leave to serve with the Committee for Economic Development (C.E.D.); Everett R. Smith, research director, McFadden Publications; and Arthur A. Hood, director of dealer relations of Johns-Manville Corporation and chairman of the Post-War Marketing Committee of Producers Council.

Mr. Watts presented a very informed opinion of the post-war farm market and its electrical merchandising opportunities. Necessary steps for individual companies to take now to plan for their post-war employment responsibilities and how best to take them in the opinion of the C.E.D. were helpfully explained by Mr. Holme. What the wage earner is thinking about management and the job planning it is doing for him in peacetime was related from Mr. Smith's personal experiences in recent travels around the country. Where the individual distributor stands in the plans for the home building field after the war proved quite a question as Mr. Hood described it.

N.E.W.A.'S EX-REPRESENTATIVE TARGET OF JAP SNIPERS

Your reporter just received a most interesting letter from John J. McDevitt, Jr., representative of N.E.W.A. for five years prior to joining the United States Navy two years ago as Lieutenant. The letter was mailed "at sea" in the Pacific and was on its way only one week. A great many N.E.W.A.ers will remember "Jack" and will be glad to hear he is safe. They doubtless will be interested too in his latest adventure with Tojo's sons of b-attle. Jack tells it this way—"I had the unique distinction of being on the first American naval vessel to cast anchor in Jap territorial waters since the war began—and for a while it was a *hot* seat!—Enclosed is a souvenir that I believe will be quite appropriate for an electrical outfit. It is an inspection tag removed from a meter at the Jap's radio station we demolished in our attack. The old McDevitt luck was holding, for the snipers bullets were still whizzing by when I removed it."

Mail meaning what it does to our fellows in the service, some of "Jack's" N.E.W.A. friends may wish to know his address.

It is:—Lt. J. J. McDevitt, Jr., U. S. N. R., Staff — Commander Transport Division 26, c/o Fleet Post Office, Francisco, Calif.

FOR LAMP *Distributors*

To many industrial suppliers and users of CHAMPION *Fluorescent* and **Incandescent** Lamps this tower is a symbol of Champion's comprehensive technical and production facilities.

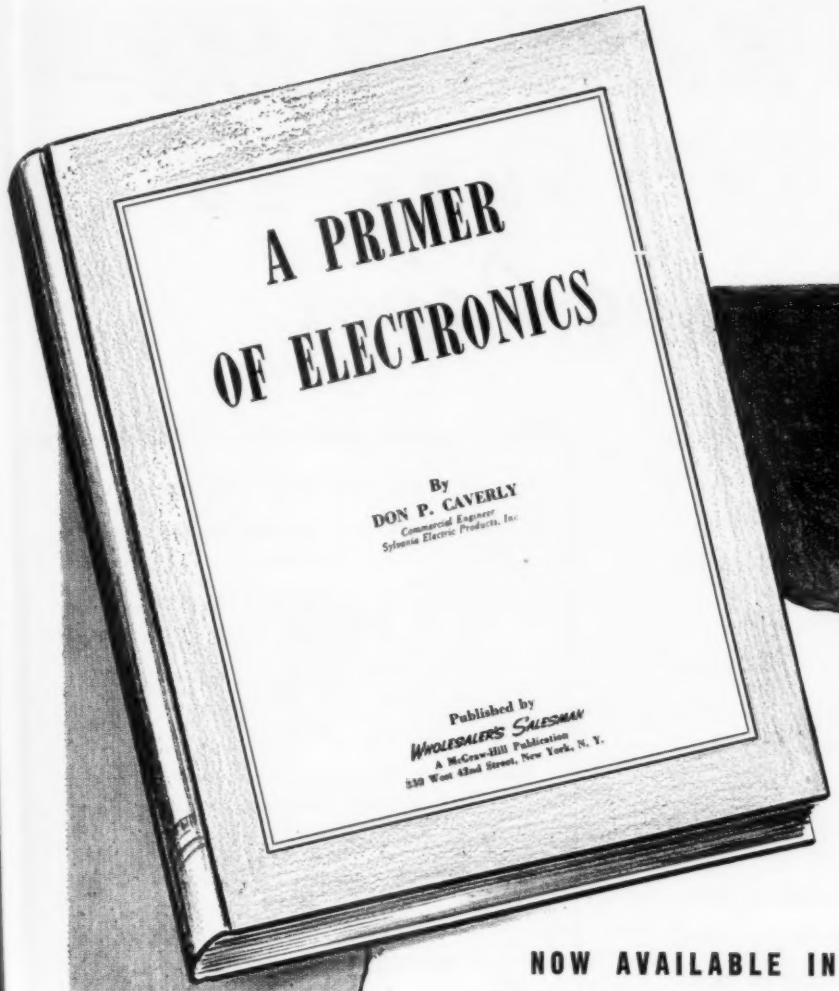
Every square foot of the great modern plant back of it is devoted to the development, manufacture and quality control of the finest lamps that forty-four years of specialized knowledge and experience can produce.

CHAMPION Lamp suppliers know, too, that the Champion selling franchise really fits their individual needs—without red tape — with lowest handling cost and with a broader market—assuring maximum volume and profit.

CHAMPION LAMP WORKS

Lynn, Massachusetts

A DIVISION OF CONSOLIDATED ELECTRIC LAMP CO.



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PART IV

Basic Electronics

Chapter 13

For Summary of Preceding Chapters
See July 1943 Issue

NOW AVAILABLE IN BOOK FORM

The book that every wholesaler and salesman should have for study now and reference later. Written in language that anyone can understand—designed to give you valuable and essential background on the fundamentals of electronics. More than 200 illustrations make it easy to grasp the basic principles without having to wade through endless paragraphs of explanations.

Be prepared for tomorrow's post-war competition with a knowledge of electronics.

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USE COUPON BELOW

SEND ORDER TODAY!

WHOLESALER'S SALESMAN
330 West 42nd St.
New York 18, N. Y.

Gentlemen:

Please send me ..... copies of Don P. Caverly's "PRIMER OF ELECTRONICS," published by McGraw-Hill. I am enclosing $..... to cover this order. (Single copy $2.00—10 or more copies shipped to one address, 10% discount.)

Please check:

☐ C.O.D.
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NAME.....
STREET.....
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Brevity is the Soul of Wit—

WHEN IT COMES TO

Conserving Paper

SURE IT'S EASIER to let your dictation roll along. Sure it's easier to write long copy. Sure it's easier to do all the good, pleasant things of normal peacetime business when paper is like water, something you can pretty well use as you will.

But now, when the increasing paper needs of the armed services daily decrease the national supply of paper—when paper is a true war essential—that's a different story.

All of us in business must watch every piece of paper or paper board we use. We must judge its use in terms of absolute necessity. We must not use a single piece, a single inch, of paper which thriftier writing or printing or packaging can possibly save.

For multiplied on a national scale, that particular piece or inch of paper or paper board becomes the tonnage needed by our service forces to ship precious food and ammunition and weapons and medical supplies and blood plasma to our troops overseas.

If there's no Paper Conservation Committee in your organization or in your community, why not get one going today?

This advertisement prepared under the auspices of the War Advertising Council in co-operation with the Office of War Information and the War Production Board.

USE LESS PAPER BECAUSE

It takes 25 tons of blueprint paper to make a battleship.

700,000 different kind of items are shipped to the Army—and they're paper-wrapped or boxed.

"K" ration containers, shipped from the Eastern Seaboard alone, take 662 pounds of paper a month.

Each Signal Corps radio set takes 7 pounds of kraft paper, 3 pounds of book paper.

Each propelling charge for 155-millimeter shell takes 3/5 pound of paper.

USE LESS PAPER THESE WAYS

Review all printed forms periodically for essentiality; consolidation; elimination of waste space; standardization of sizes, weights, color, grade; elimination of color where possible.

Eliminate slack fills, thus effecting the economies of a smaller package.

Use 8½x5½-inch letterheads for short letters; inclose them in small envelopes.

Adjust the number of units per case to the maximum practical.

Use and re-use carbon paper consistently.

Conversely, reduce the number of units to utilize lighter carton board when such reduction will result in less tonnage over-all. Be sure that the openings are on the smallest dimension of the shipping container, so that the flaps will have the smallest area possible.

LET'S ALL USE LESS PAPER

Space for this advertisement contributed by WHOLESALER'S SALESMAN

PART IV
BASIC ELECTRONICS
Chapter 13

Incandescent Lamps

If we are to adhere to the definition given at the beginning of Chapter I, an incandescent lamp cannot be considered as an electronic tube. Although electrons are released from the tungsten filament as a result of its becoming white hot, such thermionic emission is incidental and serves no purpose in the production of light. Even so, incandescent lamps are the most widely used electric light sources in the world, at present, and we cannot afford to ignore them entirely.

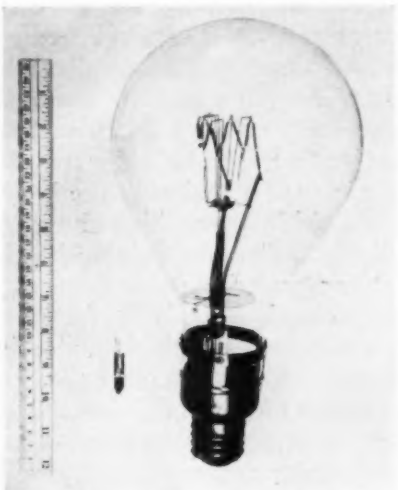
Ever since 1876, when Swan demonstrated his first crude incandescent lamp, and three years later when Edison passed an electric current through lengths of carbonized bamboo, horsehair and filaments of metal sealed in evacuated glass bottles and finally produced light for 45 hours, the development of incandescent lamps has been rapid. The filaments have undergone changes in material as well as shape. The early carbon filaments were replaced by tantalum and other metals for a short time until finally when a method of drawing tungsten into fine wire was established, that metal was, and still is used. The effectiveness of tungsten, as a filament, lies basically in its high melting point so that it is capable of becoming extremely hot without melting, thus producing a comparative abundance of light.

The shape of the filament has also changed from the original single loop of carbon wire eight or ten inches long to a coiled-coil of wire about the same length when straightened out but only little more than a half inch long in its coiled-coil form. The primary reason for concentrating the filament in this manner is to keep its heat from being carried away (by a gas) as rapidly as with a straight wire, thereby providing greater heat on the filament with consequent more light.

Other changes involved the gases used to surround the filament. The first lamps were evacuated as completely as possible at the time and the use of vacuum lamps became widespread. In fact, many of the smaller types of incandescent lamps today are vacuum lamps. When it was discovered that an inert gas such as nitrogen would retard the evaporation of the filament, resulting in less pronounced lamp blackening and higher efficiency, the gas-filled lamp appeared. Nitrogen was used exclusive for a while until argon proved to be more effective, being heavier and acting something like a blanket around the filament in keeping the evaporation rate at a minimum. There are other advantages to the use of gas in incandescent lamps and, at present, argon mixed with a very small percentage of nitrogen is used in all gas-filled lamps.

During these sixty or more years of development, the efficiency of incandescent lamps has in some instances increased in the order of a thousand percent. One hundred watt lamps, which in the early days had efficiencies of two or three lumens per watt, are now rated at over sixteen lumens per watt. (See Chapter 7—Measurement of Light.)

It appears as though future increases in incandescent light source efficiencies will be small and slow to come since each increase in the operating



Left, the small incandescent lamp used as a circuit signal for telephone switchboards. These lamps range from 4-volt 0.170 ampere to 60-volt 0.045 ampere in size. Right, a standard 2-kilowatt PS52 incandescent lamp such as is used in certain types of floodlighting and high-bay illumination. There are still smaller incandescent lamps such as the "grain-of-wheat" light used in medical work, and larger ones up to 50,000 watts.

temperature of the filament brings it nearer to its melting point. The lighting industry has developed other methods of producing light, however, which even at the outset showed efficiencies of more than double those of filament lamps. These sources involve the entirely different principles of gaseous discharge and fluorescence and will be discussed shortly.

The incandescent lamp has and is serving mankind well. It has aided in hundreds of scientific developments and with correct use has saved countless pairs of eyes from serious damage and even blindness. Those who have been closely identified with lighting during the past couple of decades will, in a sense, be sorry to see it go, like an old friend, if go it must (for general use) during the coming decade.

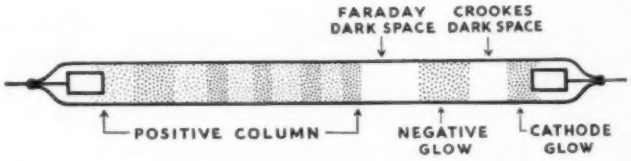
Ionization of Gases

Normally, gas is a poor electrical conductor. There are, however, several methods by which it can be made conductive. The method with which we are primarily concerned in the production of light involves charged particles in the gas, or *ionization* of the gas.

These electrified particles are called *ions* and may consist of atoms (or molecules) of the gas from which one or more negative electrons have been removed, thus leaving the atoms positively charged and the negative electrons free to take up an orbit around some other neutral atom, or to remain unattached. Atoms which have adopted an extra electron are negatively charged and called negative ions. Those which have lost an electron are positive ions. The electron removal may be the result of one or more influences. Ultra violet radiation, for example, will ionize air as was pointed out in the discussion of the ionosphere or Kennelly-Heaviside layers, high above the earth's surface. X-Rays, Gamma Rays and Cosmic Rays also cause the same effect.

Another method which is the basis of gaseous discharge lamps may be called "ionization by collision." Under all circumstances there are a few ions in a volume of gas, and when a high enough potential or voltage is applied across such a volume, these positive and negative ions will start to move toward the terminals of opposite polarity from themselves. In so doing they collide with neutral molecules of the gas, splitting them up into ions also, so that they in turn enter into the activity. Thus the gas becomes ionized within an instant and an electric discharge or arc is formed.

A gaseous discharge of this nature enclosed in a glass tube has certain characteristics which occur in accordance with the pressure of the gas, and with the voltage applied to the electrodes. The major characteristic is the production of visible light and ultra violet. Part of the electrical energy is absorbed when atoms or molecules are knocked apart to form ions and part is absorbed in forming excited atoms. An excited atom is one in which an electron does not leave the atom but merely shifts its orbit. These excited atoms almost immediately release the energy they have absorbed, so that it radiates away as visible light and ultra violet. The color, brilliancy and distribution of this light along the length of the tube depends to a large extent upon the gas being ionized, its pressure, as well as upon the voltage applied. At times there are two dark bands which appear to separate the continuous column of light. These are called the Crookes and the Faraday dark spaces. The



Dark spaces and glow columns are found in low-pressure discharge lamps. These columns of luminous gas and dark spaces vary in accordance with the gas pressure.

first occurs quite near the cathode end of the tube, and is separated from the second which appears nearer the center by a band of light called the negative glow. The Faraday dark space occurs between the negative glow and a wide band of light called the positive column which itself may be striated. These dark spaces and bands of light change in size and intensity as the gas pressure, voltage or both are varied—the dark spaces becoming more pronounced as the gas pressure is reduced.

Thus we have a method of producing light without the extremely high temperatures required in an incandescent lamp.

Gaseous Discharge Light Sources

Perhaps the most elementary forms of gaseous discharge light sources are those with which many high school physics students are familiar. They are called Geissler tubes, and are simply tubes with electrodes sealed in at each end. The glass tubing is bent in various shapes and filled with different

gases at whatever low pressure will produce the most light when the proper voltage is applied. Geissler tubes were the forerunner of present day gaseous discharge tube advertising signs, usually referred to as neon signs because neon gas is used to produce the attention-compelling orange-red glow within the tubes.

The history of the development of gaseous discharge tubes for advertising display or for lighting is not the history of a single development by one individual, but rather is the intermingling of numerous developments by several investigators. Among the best known names in early gaseous discharge tube work are D. McFarlane Moor and Georges Claude. Both of these men made demonstration lighting installations of tubing at about the beginning of the present century.

While neon gas has been widely used in display tubing, its color obviously eliminates it as an acceptable light source for ordinary visual work. Certain other gases such as helium and carbon dioxide produce a much more nearly white light but it was not until the vapors of such metals as sodium, cadmium or mercury were introduced into the tubes that they became relatively successful sources of useful light.

The sodium vapor lamp which has been most successfully used for the illumination of the "cloverleaf" type of highway intersection, bridge and bridge approach lighting and similar applications, is a lamp utilizing neon gas and sodium vapor at very low pressure. When these lamps are first lighted their color characteristics are the orange-red of ionized neon gas, but as the sodium becomes vaporized by the heat of discharge, the spectral quality of the light shifts to a golden yellow color identified with sodium.

Light of this nature is monochromatic or nearly so—that is, it contains only one narrow band of yellow light from the visible spectrum with none of the other colors present. There seems to be a mistaken impression abroad that monochromatic light as produced by sodium vapor lamps has great advantages over other sources in increasing the acuity of vision at night. While it does appear to aid the eyes in determining the character and shape of very small objects at low levels of illumination, the value of a sodium vapor lamp as a source for highway lighting is not its monochromatic light, but rather its high efficiency (approximately 40 to 50 lumens per watt, depending upon size) as well as its low brightness resulting from the relatively large physical dimensions of the discharge.

Mercury vapor lamps have found extensive use, primarily in industry. There are several types all basically the same with respect to the method of producing light, but different in gas pressure, physical size, shape and operating characteristics. Their blue and blue-green color is easily recognizable and they are usually used in conjunction with incandescent lamps to provide color correction in the illumination provided.

These sources utilize argon, or a gas which ionizes readily, and, of course, mercury vapor. Those operating at low and medium pressures and temperatures are less efficient than the high pressure sources. The well known Cooper Hewitt lamps are low pressure tubular lamps and the first linear light sources to become acceptable to industry. They utilized a pool of mercury for a cathode and an iron anode. Such low pressure mercury vapor arc discharges produce considerable ultra violet radiation, but the glass used for the tube was of a type which is opaque to ultra violet wavelengths so that no serious amount of the radiation passed through.

With an increase in the vapor pressures above a certain maximum, much of the radiant energy from the lamp is shifted from the shorter wavelength regions to longer ones, so that high pressure mercury vapor lamps produce less ultra violet and more visible light and are, therefore, more efficient as light sources. The efficiencies of high pressure mercury vapor lamps are somewhat less than sodium vapor light sources, ranging from about 30 to 40 lumens per watt, depending upon the size and type, but their color characteristics make them much more suitable for industrial lighting applications. One type of mercury vapor source operates at very high vapor pressure with a consequent high temperature and efficiency (65 lumens per watt). This source requires a quartz envelope to enclose the discharge as well as an outer bulb of hard glass so that cool water can be circulated around the inner quartz tube. Since the discharge itself is of small dimensions, the lamp is extremely brilliant. These sources are used primarily for special projection purposes.

The blue tubes used in advertising signs a few years ago employed mercury vapor also, and to obtain the green color, yellow-tinted glass tubing was used in conjunction with a mercury vapor discharge. The combination of the blue discharge

and yellow glass produced the green color. During the last few years, however, such advertising tube colors result from a fluorescent coating on the inside of the tube rather than from the discharge itself.

Luminous advertising tube operation is somewhat different than that of the discharge sources directly used for illumination. The vapor pressure is low, the cathodes are operated cool as compared to the temperature of thermionic types used in radio tubes, fluorescent lamps, and the sodium or mercury vapor lamps just discussed, and high voltage is required to operate them.

Hot Cathode Fluorescent Light Sources

It has been explained how gases and vapors enclosed in an envelope of glass are ionized when their molecules collide with electrons emitted from a cathode, and how the ions thus formed move about and cause further collisions with other molecules of the vapor. It has also been explained how energy is released and radiates at various wavelengths, in the visible light and ultra violet regions.

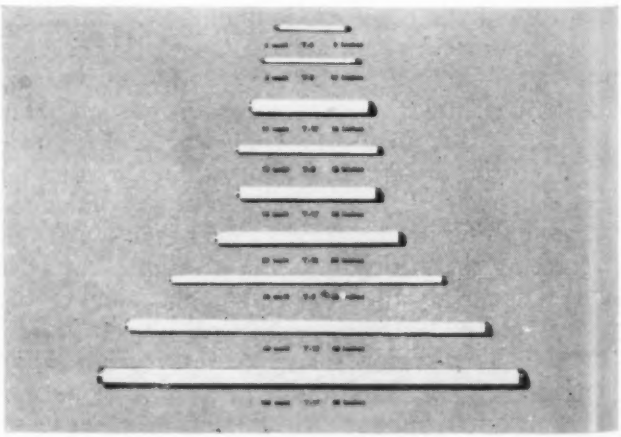
It will be recalled further that at certain low pressures, mercury vapor discharges are rich in ultra violet radiation but relatively poor in visible light radiation. Basically, the fluorescent lamp is a means of converting this invisible ultra violet energy into visible light with a degree of efficiency hitherto not accomplished with any light sources generally applicable to commercial and industrial illumination.

The converting process is accomplished by certain chemical compounds such as zinc silicate, cadmium borate, magnesium tungstate and several others. These compounds are called a *phosphors* and have the property of absorbing the radiant energy of ultra violet wavelength and re-radiating it at lower wavelengths which we can see as visible light. In other words, the compounds are "excited" to fluorescence by ultra violet of the proper wavelength.

This exciting process of the phosphors is similar in one respect to the ionizing process of the gas. The ultra violet energy disturbs the normal electron orbits of atoms making up the compound molecules so that the electrons, in returning to their normal orbits, release energy of a visible light wavelength. In the case of the zinc silicate compound, the predominant wavelength of the released energy is in the order of 5200 Angstroms, so that we see the radiation as green light. Excited cadmium borate, on the other hand, radiates visible light at wavelengths in the region of 6000 Angstroms so the color we see is predominantly pink. Calcium tungstate, another compound, is excited to blue light of wavelengths around 4500 Angstroms.

By careful blending of these compounds it is possible to provide almost any desired color with a high degree of efficiency, but certain colors have been established for standard fluorescent lamps. The green fluorescent lamp, while not applicable to general lighting because of its color, has the highest efficiency of about 70 lumens per watt. The white lamp, which produces light approximating a color temperature of 3500°K. (See Chapter 7—Color Temperature), is rated in efficiency at 52 lumens per watt for 40-watt lamps and 42 lumens per watt for 100-watt lamps. The fluorescent compounds coated on the inside of daylight lamps have been deliberately blended to closely match "standard" daylight which has been designated as a combination of sky conditions producing natural light of a color temperature of 6500°K. The efficiency of daylight fluorescent lamps is established at 45 lumens per watt for 40-watt lamps and 37 lumens per watt for 100-watt lamps. Without doubt, progress in fluorescent lamp manufacture will result in increased efficiencies the same as has taken place over the past half century with incandescent lamps.

While the fluorescent compounds used in fluorescent lamps become excited throughout a fairly wide range of ultra violet wavelengths, different ones show their maximum or peak excitation at different wavelengths. In the spectrum of a mer-



The range of available sizes of standard hot-cathode fluorescent lamps.

cury vapor arc at a few microns pressure, there is a very pronounced resonance line at 2537 Angstroms at which wavelength 80 percent or more of the ultra violet energy is radiated. This wavelength is *not* the most potent exciter for *all* the phosphors used in fluorescent lamps, but it *is* the most potent one for the *largest number* of them, and it is not too far from the peak excitation region of the others.

In fluorescent lamp manufacture there is a very careful correlation between the excitation properties of the fluorescent chemicals and the pressure characteristics of the vapor discharge, since even a slight increase in pressure will shift some of the radiant energy to longer wavelengths which do not possess as much ability to excite the chemicals, so that a lower output of visible light results.

In addition to accurate pressure control, extreme purity of the argon gas and mercury is essential along with the highest quality methods of exhausting, in order that swirling or "snaking" arcs be avoided. Swirling arcs were sometimes found in early fluorescent lamps and are caused by extremely minute quantities of a foreign gas such as carbon dioxide or a vapor such as water, which are either not removed in the exhausting process or are present in the argon when placed in the lamp. Such impurities may also be driven from the cathode into the discharge under adverse starting conditions. The negative ions of a foreign gas or vapor of this nature seek the outer limits of the column of gas where they form in rings or "doughnuts" around the inside of the tube. Convective currents within the tube cause them to rotate in an eccentric fashion and the arc, constricted where it passes through the "holes", is forced to follow the motion of the "doughnuts." With two or three of these rotating within a lamp, the discharge takes a spiral or swirling path along the tube.

Our primary interest in this discussion of fluorescent lamps lies in the basic electronic principles involved rather than in their characteristics and applications as light sources, particularly since the latter have been quite adequately covered in several handbooks, manuals and published bulletins. However, some of the physical elements of fluorescent lamps as well as certain essential features of their operating circuits may be included since they are related to the electronic performance of the lamps.

Standard fluorescent lamp cathodes are similar to those in a radio tube. That is, they consist of a coiled-coil tungsten wire coated with a material which facilitates thermionic emission. (See Chapter 12—Thermionic Emission.) There are also, in some lamps, two probes extending along each side of the filament which act as anodes during the starting process and aid in the rapid ionization of gas in the immediate vicinity of the cathode. They also carry part of the current during lamp operation.

A type of hot cathode used in standard fluorescent lamps showing the mercury-filled sleeve extending downward from the right-hand support wire.

A very small quantity of extremely high purity mercury is placed in the lamps either during the exhausting process in a free form or sealed in a tiny metallic sleeve welded to one of the filament supports of one cathode. In the latter method, precise measurement is obtained and possible contamination of the mercury from a dispensing device is avoided. The mercury in the filled sleeve (called a "Mercury Bomb") expands from the heat of the cathode when current is first passed through it, so that the sleeve bursts or "explodes," releasing free mercury and mercury vapor in the lamp.

Fluorescent Lamp Circuits

Fuorescent lamps have cathodes at each end which, at the start of lamp operation, are in series with each other through either a manual starting switch or an automatic thermal (or magnetic) starter, as well as in series with a choke coil called a *ballast*. When the current is first turned on it passes through the choke coil, one cathode fila-

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On the wall is FA Load Center, with D. P. 35 Amp. AC Thermag Circuit Breaker for range circuit, and 4 S. P. AC Thermag Circuit Breakers for light and appliance branch circuits.

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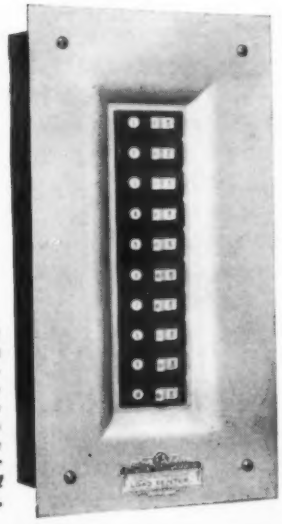

At right: FA Load Center, with 10 S. P. FA Type AC Thermag Circuit Breaker Branch Circuits, for light and appliance The circuit breakers are made in individual pole units, but can be furnished with a double pole cross bar (as shown on wall above) to make it possible to operate a double pole main breaker or branch circuit breaker with one operation, but with individual trip per pole on overload or short circuit.

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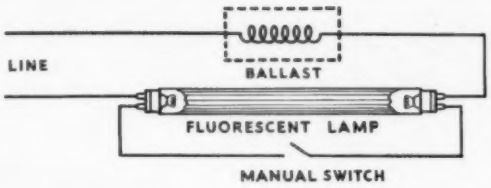


A simple single fluorescent lamp circuit with manual starting switch.

ment, the closed starting switch, the other cathode filament, and thus completes the circuit. With current flowing through the cathode filaments they become hot and thermionic emission takes place, the electrons being emitted from the filament and flying to the anodes (or lead wires when anodes are not used) thereby ionizing a volume of gas at each end of the lamp. As long as current is permitted to flow through this series circuit, the filaments will glow and gas will be ionized at each end, but a discharge through the column of mercury vapor along the length of the lamp will not take place.

At this point, if the switch or starter is opened, either manually or automatically, the continuous series circuit is broken so that each cathode is now a single terminal with the column of low pressure mercury vapor separating it from the other cathode. In the discussion of inductance in Chapter 4 it was pointed out that a counter-electromotive force is generated by the magnetic field of an inductance coil through which alternating current is flowing, and that this force resents the stopping of the current through the coil after it is once flowing. Thus, when the fluorescent lamp starting circuit is broken, the tendency of the counter-electromotive force to maintain a flow of current in the ballast coil usually develops an instantaneous surge of high voltage which will more readily start current flowing or ionize the column of mercury vapor between the cathodes and light the lamp.

Once the discharge is formed it tends to draw more and more current so that the lamp would be immediately destroyed unless some means is taken to regulate the current. The ballast coil also serves in this capacity and maintains the proper operating characteristics of the lamp.

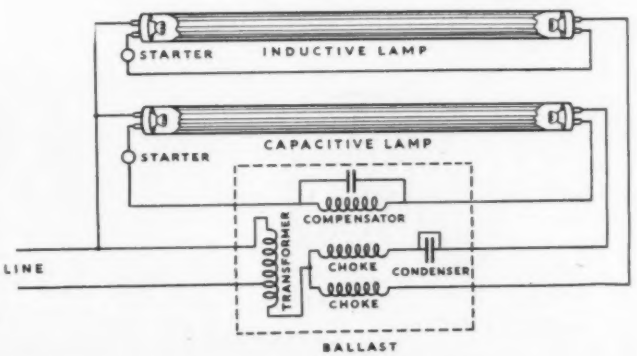
If we refer back to the discussions of Inductance and Power Factor in Chapter 4, again, it will be recalled that when inductance is introduced into a circuit, the current peak occurs after the voltage peak, and a *lagging* power factor exists. Therefore in the simple fluorescent circuit just described, we find a lagging power factor of around 55 percent or 60 percent prevailing. Since this results in a wasteful use of wiring capacity, and since one lamp operating alone produces an objectional flicker with each alternation of the current flow, it has become general practice to correct both faults by using a two-lamp auxiliary.

In the two-lamp circuits, one lamp operates essentially as described above. The other lamp, however, utilizes a capacitor of proper characteristics in series with its ballast coil so that its total reactance (Chapter 5) is capacitive rather than inductive as with the first lamp. Referring once more to the Power Factor paragraphs in Chapter 4, we find an explanation of how with capacitance in a circuit, the current peak will occur before (or ahead of) the voltage peak or lead it, which results in a *leading* power factor. Thus, with one lamp lagging and the other leading by about the same power factor values, the two-lamp circuit produces a combined power factor of 95 percent or better.

The smaller sizes of fluorescent lamps (15, 20, 30 and 40 watts) frequently will not start readily when operated on the capacitor circuit as a result of excessive limiting of the starting current by the capacitor. To offset this, another small choke coil, called a compensator, is connected in series with the starter so that it functions only during the lamp starting process.

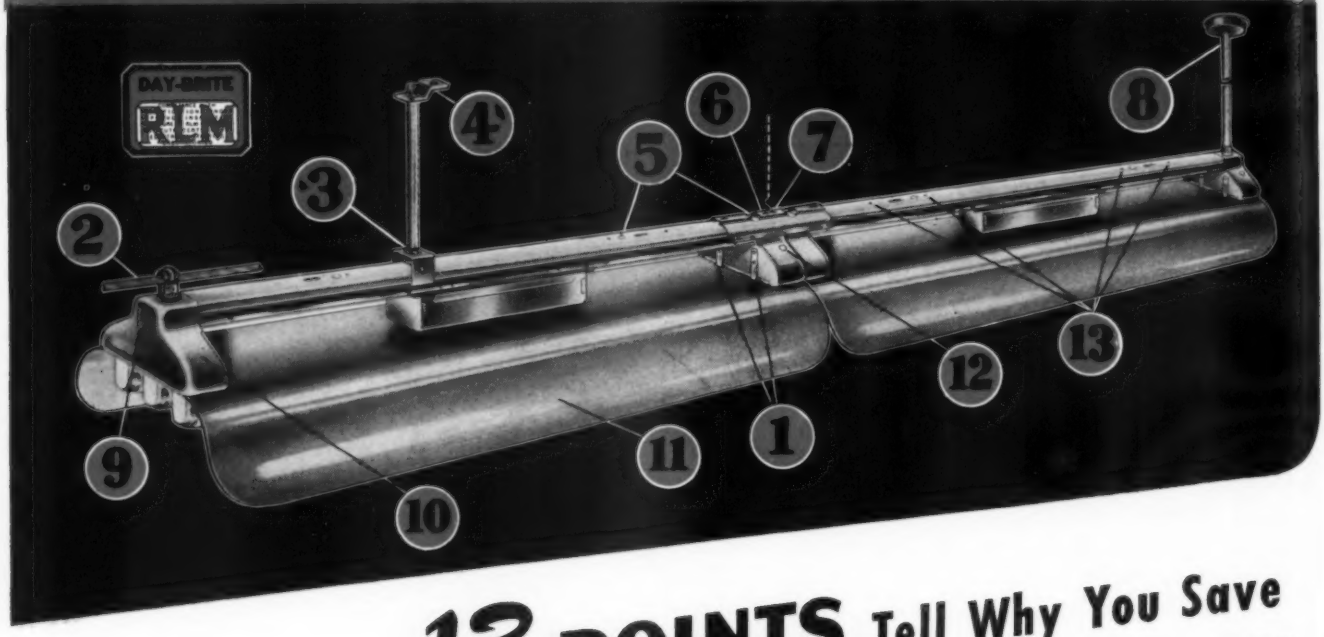
The two-lamp circuit does not reduce the alternating current flicker of individual lamps, but it does cause one to reach its higher brightness values while the other is in a state of low brightness, so that illumination resulting from a good blend of the two will show little or no annoying flicker.

Stroboscopic effects are caused when rotating



Circuit of a two-lamp ballast with built-in starting compensator, for two 30-watt or two 40-watt lamps on 110- to 115-volt circuits.

The DAY-LINE... For Single Unit or Continuous Installations



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5. K. O.'s for pipe and cord.
6. Rigid one-piece coupling converts, single units to continuous fixtures.
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11. Non-metallic reflectors (RLM and U. S. Bureau of Standards approved). Reflection factor, 85% or more. Angle of cutoff, 14°.
12. K. O. for switch.
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machinery or moving parts are viewed under a single flickering lamp or under two or more which have not been corrected as just described. In extreme cases, when the rotation or vibratory motion of machinery coincides with the frequency of the flicker, the machinery may appear to be stationary. At other times it will appear to be going backward or forward at slower speeds than its actual motion.

There are other methods of correcting unfavorable power factor conditions with large capacitors for whole lighting systems, and frequently flicker can be overcome by placing adjacent lamps or fixtures on separate phases of a three-phase system. A sequence starting circuit which utilizes a four-lamp ballast is applicable in certain types of installations where either continuous rows of fixtures or adjacent pairs of fixtures, containing two 100-watt fluorescent lamps each, are used on a 460/265 volt 3-phase four-wire distribution system of wiring. This circuit saves considerable copper and steel, not only in the ballasts but in the wiring system as well, and has been used to some extent in many of the largest industrial plants. For single lamp operation, ballasts having a high power factor (90 percent or more) are available. There is also a method of operating two 14-watt (15-inch) fluorescent lamps in series with a special incandescent lamp which serves as a resistance ballast on either alternating or direct current systems. The larger sizes of lamps may be used on direct current systems providing resistances having the proper values and are used in series with single-lamp ballasts, but with such a combination the total auxiliary losses are considerably higher than with alternating current operation so that the overall efficiency is reduced appreciably.

Although these and other methods of operating fluorescent lamps find occasional justification, the use of two-lamp auxiliary equipment seems to have been generally adopted and has proven successful for the large majority of applications. Continual research in fluorescent lamp circuits and auxiliary design, however, will most likely result in decided improvements.

Fluorescent Lamp Starters

As explained in the previous section, fluorescent lamps must be started under one set of conditions and operated under another. The change-over consists simply of breaking the circuit in which the two cathode filaments are in series with each other, after they have become sufficiently heated to provide adequate thermionic emission. This circuit breaking can be done manually with a single throw switch of any type (push-button, twist, knife blade, etc.), or it can be accomplished automatically by a magnetic or thermal device which will remain closed long enough after the current is turned on to allow the necessary cathode preheating. Such a time-delay switch is called a starter, and although there are several satisfactory types, we shall confine this discussion to the one which depends upon electron emission and ionized gas for its operation and therefore is, in a true sense, an electronic device.

Starters of this type are called *glow starters*. The operating parts which are enclosed in a small, sealed bottle containing argon or neon gas at relatively low pressure, consists of a bimetal strip and a second contact element quite close to it. (A bimetal strip is made up of two pieces of metal having different expansion characteristics, so that when heat is applied to a ribbon or strip having one metal on one face, and the other on the other, the strip will bend or curl.) These contracts are normally apart or open. That is, when the starter is cold and not operating, the bimetal does not touch the other contact. All fluorescent starters are placed across (in parallel with) the lamp, so that when the current is first turned on, the line voltage is received across the starter. In the case of 40-watt lamps and 118-volt lines, a transformer is incorporated in the ballast which raises this to about 200 volts.

The voltage necessary to produce a discharge

One type of glow starter used in conjunction with fluorescent lamps. The curved bimetal strip and second contact can be seen.

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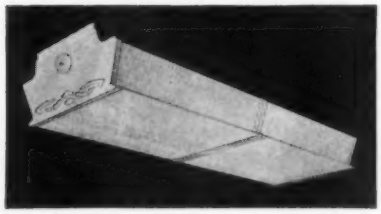

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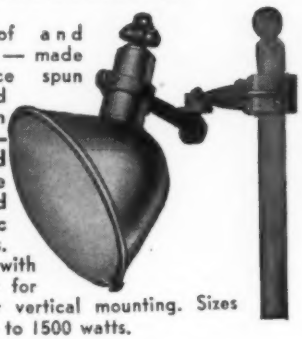

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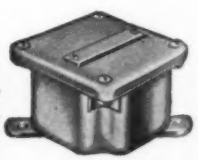

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through the argon gas in the bottle is established between 130 and 160 volts (for 30 and 40 watt starters—less in smaller ones), so that the gas ionizes when the current is turned on and a glow discharge takes place. Heat generated by this discharge causes the bimetal strip to move over and make contact with the other element and thus light the two cathodes which at this point are in series with each other through the contact just established in the starter.

At the instant of contact and as a result of it, the glow discharge stops, thus removing the heat from the bimetal, but there is enough heat lag in the elements to hold them in contact with each other for a sufficient length of time to assure proper cathode preheating time. When cool, the bimetal moves away from the other element thus breaking the contact and lighting the lamp. With the lamp lighted the voltage across the starter is too low to produce a discharge through the gas in the starter bottle, so that the starter remains inactive with the lamp in operation.

Other types of thermal starters operate by means of resistors, a high resistance contact between carbon and nickel, or some other method of supplying heat to move the bimetal strip instead of ionized gas. Magnetic starters, which have been replaced almost entirely by the thermal and glow types, use electromagnetism to move and hold the contacts as required for lamp starting.

Cold Cathode Fluorescent Light Sources

The basic principle of cold cathode light sources (sometimes referred to as high voltage tubing) is identical to that of standard or hot cathode fluorescent lamps. That is, a low pressure mercury vapor discharge is produced to provide the necessary wavelengths of ultra violet which cause fluorescence of the compounds coated on the inside of the tubing. Compounds having the same ingredients in the same proportion as those used in standard fluorescent lamps will produce the same color of light in cold cathode tubes. The efficiency with which it is produced, however, may not be quite as high at present as with standard fluorescent lamps because of certain operating factors.

Cold cathode tubes depend upon electron emission from their cathodes, to start the discharge, but the emission is not thermionic. Instead, a high potential (voltage) is placed across the column of mercury vapor between the electrodes to force electron emission and current flow. Such potentials may be from five or six hundred to 15,000 volts, depending upon the length of tubing.

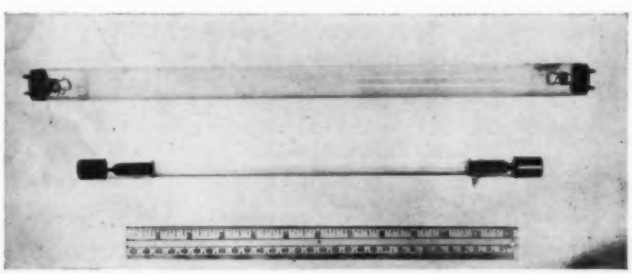
It is highly probable that cold cathode fluorescent light sources will be applied to a much greater extent in the near future than at the present time. They have the advantage of instantaneous starting and a relatively simple transformer circuit. Power factor can be corrected, frequency flicker is much less pronounced in single tube lengths, and tube life is considerably longer due primarily to the fact that cathodes can be made more rugged and durable when electron emission is not obtained from a heated filament. The disadvantage of high voltage wiring will most likely be overcome by proper design of equipment based upon carefully determined safety requirements.

It is possible that the demands of home lighting upon fluorescent sources will result in a combination of hot and cold cathode operating factors, so that the advantages of standardized lengths, colors and higher efficiency will be coupled with instantaneous starting, simpler auxiliary equipment and longer life of the sources.

Bactericidal Tubes

Chapter 9 was devoted entirely to electromagnetic waves in the ultra violet band, and some discussion was given the bactericidal region within this band. Since the peak of the bactericidal region occurs at wavelengths in the order of 2537 Angstroms, and since a mercury vapor discharge at a few microns pressure produces an abundance of radiation at this wavelength, it is obvious that mercury vapor sources will kill bacteria providing the radiations can pass through the glass wall of the tube enclosing the discharge.

Bactericidal tubes (or sterilizing lamps) are



Two types of bactericidal tubes. The one at the top employs a hot cathode similar to that used in a fluorescent lamp. The one at the bottom is of the cold-cathode type.

practically identical to fluorescent sources as far as their electrical and discharge characteristics are concerned. They may operate with either hot or cold cathodes and the essential difference is the fact that ultra violet transmitting glass (or quartz) is used, and of course, no fluorescent powder is applied.

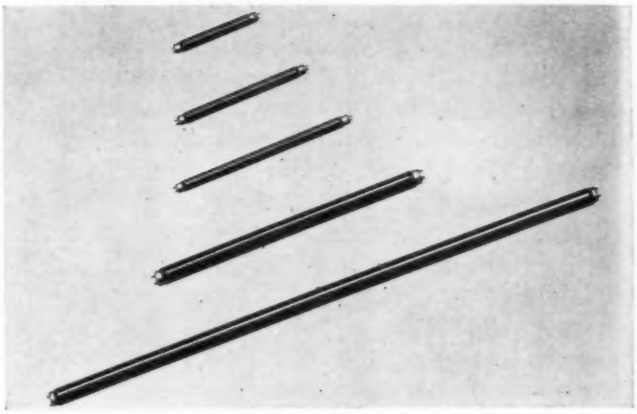
With the hot cathode types, standard fluorescent auxiliary equipment (ballasts) and starters are used, whereas the cold cathode types require a transformer and operate at voltages ranging from about 300 volts for 10″ tubes to 500 volts for 30″ tubes. The hot cathode types are manufactured in sizes corresponding to 15-watt and 30-watt T-8 fluorescent lamps, and other standard sizes are possible. There are also on the market several types of special bactericidal tubes having bent shapes, and single and special bases—some utilizing quartz for specific applications.

"Black Light Sources"

To the average individual, the term "Black Light" seems to have an ominous and mysterious meaning. Two antithetical words such as these, bound together as a term or phrase, quite naturally cause some amount of subconscious questioning because the words do not seem to belong together. As a matter of fact "Black Light" is neither black nor light, but is invisible ultra violet radiation in the wavelength region of 3600 Angstroms. The word "light" is used because the radiation is only just beyond visible violet light in the electromagnetic spectrum, and also because it produces fluorescence of certain compounds or pigments which can be mixed with paints, dyes, lacquers, inks and similar products to make them flow with light. The word "black" is associated with "light" because the glass envelope surrounding the mercury vapor discharge is black (or very deep red-purple in color) and, therefore, opaque to practically all visible light.

"Black light" is not new. For several years it has been a theatrical stage lighting "trick." Carbon arc lamps, which are powerful sources of ultra violet (of all wavelengths) as well as of visible light, are used with heavy red-purple glass filters to hold back all visible light but permit the longer wavelengths of ultra violet to pass through. Stage scenery and costumes are treated with fluorescent chemicals and glow beautifully and eerily in the nearly invisible "black" beams of the "light."

Although the carbon arc is used to some extent in theatrical work, mercury vapor discharge lamps have opened much wider fields. Both high and low pressure lamps are employed in a number of applications for commerce, industry, transportation and most important, war purposes.

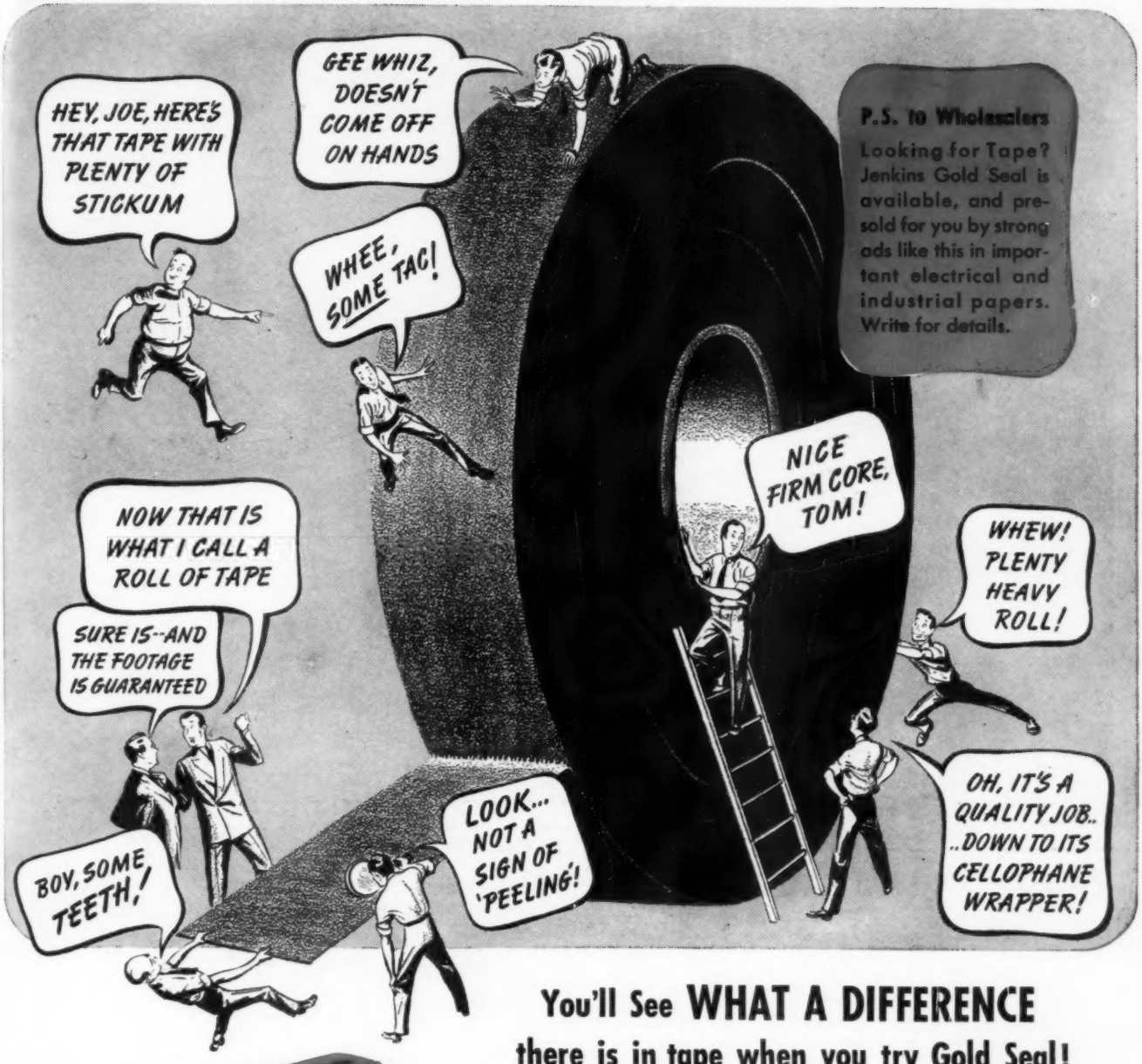


Commercially available black-light sources, arranged in size from the 4 watt at the top to the 30 watt at the bottom.

High pressure, high power sources have the advantage of high output of ultra violet (at 3600 A.), so they are used when the fluorescent objects are to be located at some distance. They have the disadvantage of producing considerable heat and being relatively short lived. They also produce an abundance of visible light which must be eliminated with thick red-purple filters if the fluorescence is to be most effective. On the other hand, low pressure discharges are comparatively weak in 3600 A. ultra violet, but do not require as much power or generate as much heat, and therefore can be applied to the fluorescent subject at very close range. Such close range possibilities have resulted in the small 4-watt low pressure discharge lamp becoming vitally important for wartime applications, one or two of which will be described shortly.

As a rule the high pressure sources are made with a clear glass or quartz bulb, either enclosed in an outer bulb of red-purple filter glass, or placed in a projector having a thick red-purple lens. The mercury vapor discharge characteristics are basically the same as those of high pressure discharge light sources described earlier in this chapter.

The low pressure sources operate the same as standard fluorescent lamps of comparable wattage, and utilize the same ballasts, starters and sockets. The tubular envelope enclosing the discharge, however, is of the red-purple glass so


HEY, JOE, HERE'S THAT TAPE WITH PLENTY OF STICKUM
GEE WHIZ, DOESN'T COME OFF ON HANDS
WHEE, SOME TAC!
P.S. to Wholesalers
Looking for Tape? Jenkins Gold Seal is available, and pre-sold for you by strong ads like this in important electrical and industrial papers. Write for details.
NICE FIRM CORE, TOM!
WHEW! PLENTY HEAVY ROLL!
NOW THAT IS WHAT I CALL A ROLL OF TAPE
SURE IS--AND THE FOOTAGE IS GUARANTEED
BOY, SOME TEETH!
LOOK... NOT A SIGN OF 'PEELING!
OH, IT'S A QUALITY JOB.. ..DOWN TO ITS CELLOPHANE WRAPPER!

You'll See WHAT A DIFFERENCE
there is in tape when you try Gold Seal!

There are "tricks to every trade" – and we believe we use a few that other tape makers haven't heard about. Some of them cost a bit more to put into the product . . . others are "secrets". But – if you could see us make Jenkins Gold Seal Friction Tape, you'd know instantly why this tape gives a tighter, longer-lasting bond . . . why it speeds up work . . . why it doesn't ravel, "peel" and "dry out" like ordinary tape.

A good example of Gold Seal superiority is furnished by the "unwinding test": The Specification Test restricts the pull down rate to 25 inches per minute, but Jenkins Gold Seal Friction Tape cuts that rate in half!

There are other tests just as convincing – but the best proof of all is the "on the job" test you can make yourself! Jenkins Bros. (Rubber Div.), 80 White Street, New York 13, N. Y.; Bridgeport; Atlanta; Boston; Philadelphia; Chicago.

Other Jenkins Bros. tape products include Diamond Seal Friction Tape, and Diamond Seal Splicing Compound, which meet all ASTM and Federal specifications.

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Gold Seal Tapes

FRICTION and RUBBER TAPES

MADE BY JENKINS BROS . . . MAKERS OF FAMOUS JENKINS VALVES

NEW MITCHELL 4-LIGHT FLUORESCENT FIXTURE for Commercial Lighting

MODEL No. 2044
Uses Four 40-Watt Lamps

3 APPLICATIONS WITH ONE MODEL

Surface Mounting *Suspension Mounting*
Continuous Rows

EASY TO INSTALL

Just Slide on to Tracks

A matter of minutes to fasten each track to ceiling, slide and lock fixture in place. Takes less time and effort to install than any other fixture.

TWO TYPES OF TRACKS FOR CONTINUOUS ROW AND CEILING MOUNTING

Single track used when units are mounted individually.

Double track used where units join for end-to-end mounting.

MITCHELL FLUORESCENT

Model No. 2044, using four 40 watt lamps, is the latest MITCHELL commercial fluorescent fixture, designed for use in offices, drafting rooms and other work areas. Provides cool, comfortable, economical lighting. Complies with latest WPB regulations — contains less than 6 lbs. metal. Single model offers every possible method of hanging — suspension mounting, surface mounting, individually or in continuous rows. Takes less time to install than other commercial fixtures because of new, simpler method of hanging. Metal "tracks" (furnished as standard equipment with each unit) are fastened to the ceiling with toggle bolts or Ackerman. Fixture simply "slides into place" on tracks. All-metal wireway channel and end pieces, finished in durable, high-gloss, chip-proof white enamel. Abundant knock-outs provided. Power Factor over 90%. Stroboscopic corrected. Underwriters' Laboratories approved. Unit is completely wired, ready for hanging.

Get full details from your MITCHELL DISTRIBUTOR or write to

MITCHELL *Manufacturing Company*
2525 CLYBORN AVE. • CHICAGO 14, ILLINOIS

Unit employing the RP-12 lamp, showing the adjustable red-purple filter on the end.

that no further filtering is required. Low pressure sources of this type do not depend directly upon the discharge for *3600 A.* wavelength ultra violet potency, since at low pressures the greatest amount of energy is radiated at *2537 A.*

As was pointed out in the discussion of fluorescent light sources, the 2537 A. wavelength produces fluorescence of various compounds at different wavelengths of visible light which we see as green, blue, pink, yellow and other colors. In the case of low pressure "black light" lamps, a compound is used which fluoresces with a considerable amount of 3600 A. wavelength ultra violet, as well as some visible light of a blue-violet color. If a red-purple envelope is coated with this compound and the low pressure mercury vapor discharge produced inside, it can be seen that the 2537 A. wavelength of the discharge will cause the coating to fluoresce at 3600 A. plus some visible light wavelengths, but that only the 3600 A. will radiate from the lamp as a result of the red-purple tube filtering. With this process we have an efficient source of 3600 A. near ultra violet ("Black Light") for application at close range to those paints, dyes, and inks which "excite" to visible light at that wavelength.

Many wartime operations are carried on at night when absolute darkness is essential for their success. At such times, even the tiniest light source becomes a beacon to the enemy. At such times, also, a feeble light can be a source of annoying glare to the dark-adapted eyes of those directing and carrying out the operation.

Yet, modern warfare is machine warfare, and tanks, planes, submarines, surface craft and other mobile units of a fighting body must be operated in conjunction with instruments—and these instruments and dials must be visible to the operators. It is this problem that "black light" has helped to solve. The numerals, symbols and indicators of many of these instrument dials are treated with a fluorescent material so that they become dimly visible in the presence of "black light" without producing an undue amount of light to cause detection by the enemy or annoyance to those who must watch the dials as well as the progress of the operation.

There are dozens of other uses in addition to the above, some for war such as fluorescent maps and marine depth recordings (in conjunction with supersonic impulses—See Chapter 11), and some for industry, which now makes flaws and minute cracks in metal castings more visible with fluorescence and "black light."

There are a few other sources of 3600 A. wavelength ultra violet which in themselves are not "black light" sources but which do make use of a red-purple filter at times. Perhaps the best known and certainly the most important of these is a small lamp designated as the RP-12.

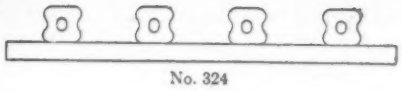
This source is unique in its cathode-anode construction and in the fact that the discharge occurs in a nearly spherical volume of mercury vapor rather than in a column as with other low pressure sources just described. It is a fluorescent lamp depending upon the 2537 A. wavelength of ultra violet to produce fluorescence of the coating like all others, but unlike "black light" sources, clear glass is used so that an appreciable amount of visible light is produced in addition at 3600 A. wavelength ultra violet.

This lamp was designed specifically for use in airplanes to excite fluorescent dial markings on the instrument panels. It is placed in a fixture having a variable red-purple glass filter so that either 100 percent "black light", or 50 percent "black light" and 50 percent visible light can be obtained. Under certain conditions of night combat flying, the pilot wants as little light as possible and yet have certain of his instruments readable. Under other conditions, such as at dusk or dawn, when there is some amount of daylight around him, he needs the visible component in order to see his instruments. There are also several other factors which make such lighting flexibility essential.

"Black Light" source and application development is continuing and when the commercial and home markets are opened more fully, this type of illumination will, in all probability, become quite commonplace for specific low level use.

TO BE CONTINUED

For table of contents and chapter summaries see the July 1943 issue.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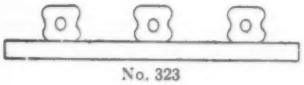
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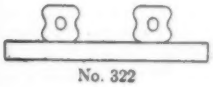
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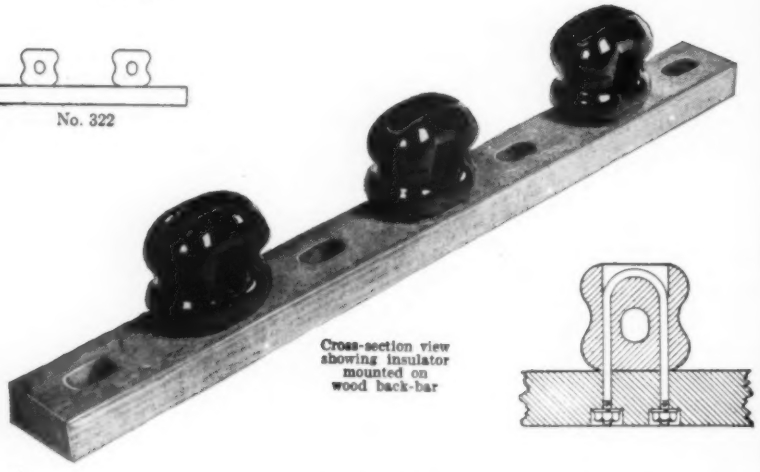

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THESE BETTER WOOD-BACK RACKS

Required By Army Construction Specifications

Wood-back Racks, a war-time development, are proving far superior to their peace-time predecessors in many respects. They provide maximum safety because they are made almost entirely of insulating materials. They are lighter, easier to handle and have equal, or superior, performance characteristics than similar metal racks. Made of tough hardwood, treated with a permanent toxic water repellant wood preservative and with insulators securely fastened, they will last indefinitely. Wood-back racks are in service on thousands of jobs throughout the United States. Order today from your Electrical Jobber.

FOR NON-METALLIC WIRING CONSTRUCTION

Porcelain Outlet Boxes

Surfolets

PORCELAIN PRODUCTS, Inc.

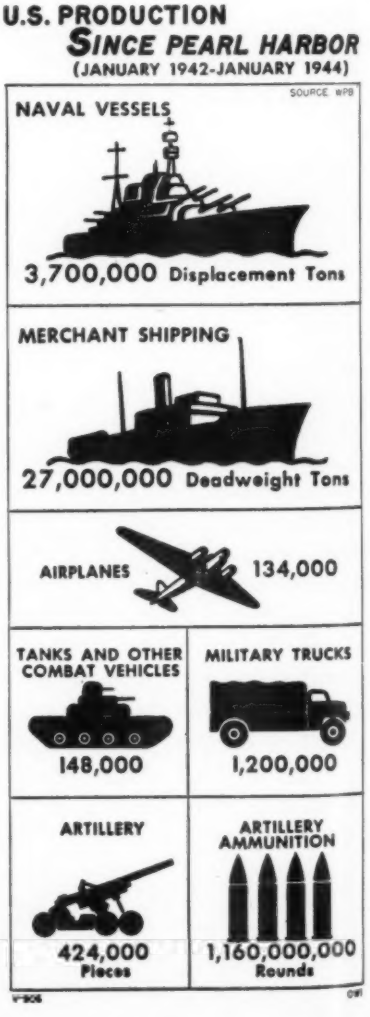
FINDLAY, OHIO

New Surplus Goods Bill Introduced

Another plan for the disposition of surplus inventories of strategic materials owned by the Government and by Government-owned plants has been introduced to the House of Representatives.

Under this Bill, which was sponsored by Representative Harkness of Indiana, no sales of surplus stocks of strategic materials, which includes electrical equipment, would be made for three years after cessation of present hostilities, except in cases of shortages or if spoilage might be imminent. Sales would be limited to 10 percent of total government-owned stocks to any purchaser in any one year, again except for shortages or possible spoilage.

The Bill—HR 3856—proposes an eight-member National Reconversion Board to handle the control of sales of any inventories of strategic materials.



WHOLESALER'S SALESMAN NEWS

NEWA Convention Attendance Expected To Top All Records

Tentative program announced for 3rd Annual War Conference in Chicago includes luncheon and dinner, appliance distributors session, calls for adjournment on Saturday afternoon

WITH the current nationwide attention toward post-war planning expected to further wholesalers' interests in the annual NEWA meeting, attendance at the forthcoming 3rd War Conference of NEWA at Chicago, April 19 to 22, is expected to exceed even the record high set last May at Buffalo.

The tentative program reflects "full consideration for everyone concerned with the distribution of electrical goods under war conditions as well as for those contemplating conditions peace may bring," according to Charles G. Pyle, managing director of NEWA.

Featured on the program is a luncheon scheduled for Friday. The association has announced that two speakers, currently prominent in national affairs, will appear. In a lighter and more diverting vein is a dinner planned for Thursday night, when entertainment is to be sponsored by the electrical wholesalers of Chicago. Tickets may be obtained from NEWA, or from the Chicago Electrical Wholesalers Association.

Many Meetings Planned

The "strictly-business" part of the convention begins on Wednesday with meetings of the executive and management committees, and registration of members and guests. Thursday will be devoted to the organization meetings of the Electrical Appliance Distributors Division, commodity committee meetings, and other committee meetings. In the evening will be held the aforementioned dinner and entertainment.

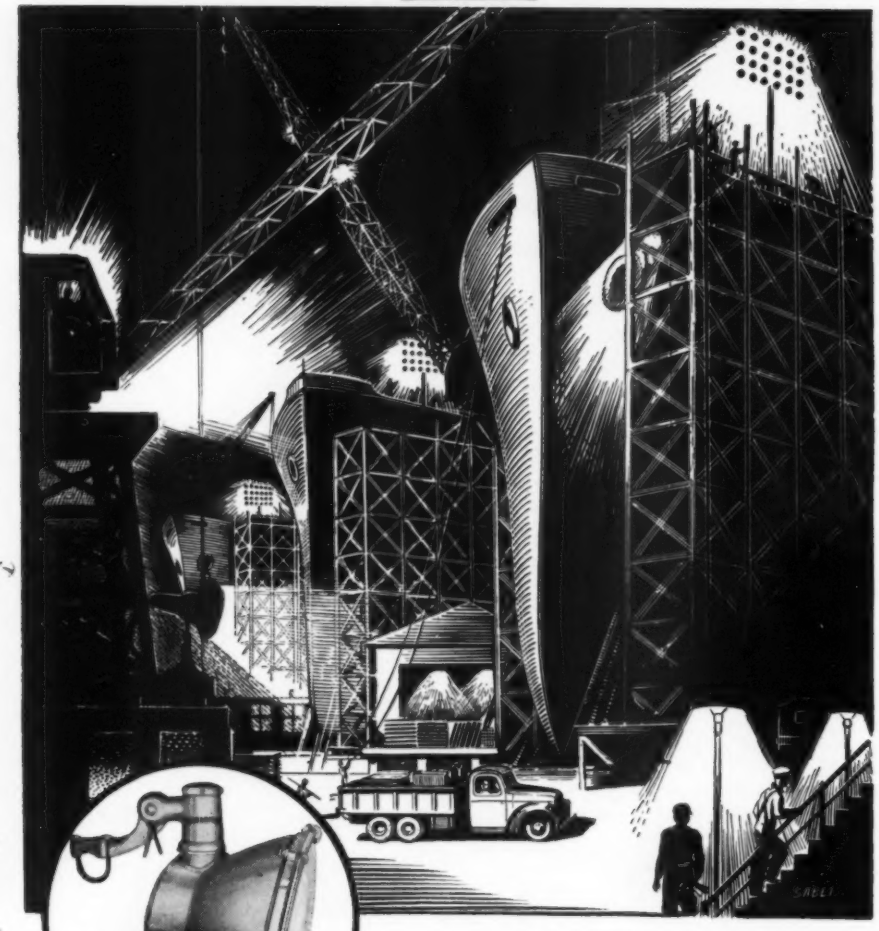
The opening convention session is scheduled for Friday morning, to be followed by the luncheon. Caucuses for nomination of executive committeemen will be held in the afternoon. The executive and management committees will meet again Friday evening.

The second convention session is Saturday morning, and is restricted to NEWA members. At noon the Atlantic and Central Divisions will meet. The closing convention session will be held on Saturday afternoon.

During the convention sessions, special addresses will be delivered by A. E. Schanuel, field representative of the National Adequate Wiring Bureau; L. M. Nichols, chairman of the Technical Sub-Committee of the Operating Cost Committee; Willard Hall, representing the Post-War Planning Committee. Mr. Nichols will report on the operating cost study of several

"E" TO UNIVERSAL—In recognition of excellence in war production the Army-Navy "E" was awarded recently to the employees of Landers, Frary & Clark, New Britain, Conn. R. L. White, president of the company, above left, represented the management, and James Degnan, above right, represented the employees at the presentation of the "E" flag. In the center above are, left, General Guy H. Drewry and Captain A. K. Atkins, who made the presentation.

SEE-Power
that builds SEA Power



CONSIDER the part of lighting in our gigantic ship building program! It enables shipyards to carry on night-time operations with daytime efficiency and safety standards—and multiplies normal working hours by three. Fighting and cargo ships of all kinds are sliding down the ways ahead of schedule! *See*-power has become another American reality for the Axis to reckon with.

Here, again, Goodrich lighting equipment is providing *see*-power to bring Victory sooner. It is but one more example of the way Goodrich lighting specialists and Goodrich lighting are serving American industry. There's a Goodrich fixture to answer every industrial lighting need.

Sold Through Electrical Wholesalers

HIGHLITE

STOCKLITE

VAPORLITE

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GOODRICH
ELECTRIC COMPANY
4600 BELLE PLAINE AVENUE, CHICAGO 41, ILLINOIS

selected supply lines now being conducted by the committee. Mr. Hall will present a report he has prepared on the "Potential Appliance Market After the War."

Electrical Wholesaler Goes "Electronics"

A new corporation to be known as "Cleveland Radiolectric, Inc." will succeed the Cleveland branch of the Moock Electric Supply Company on February 1st. according to an announcement from C. C. Conrad, president.

Capitalized at $300,000 and designed to be an aggressive merchandizing organization capable of meeting whatever post-war pattern distribution may take, the new company will take over Moock Electric's RCA-Victor and Easy Washer franchises, and supplement these lines with refrigerators, freezer cabinets, ranges, water heaters, vacuum cleaners and possibly traffic appliances. The new company will cover the Cleveland trading area of some 25 counties in northeastern Ohio.

The Moock Electric Supply Company will continue to operate its electrical supply business not only in its home office in Canton, but also in branches at Youngstown and Akron. It is considered one of the oldest houses, having started business in 1906.

Radio Mfgrs. to Study Costs of Distribution

A survey to secure facts on the distribution costs of radio set distributors and dealers was authorized by members of the Radio Manufacturers Association at its "Mid-Winter Conference" held recently at Chicago. An appropriation of $5,000 was granted to finance a survey by an independent commercial agency. The latter would be directed to secure facts on distribution costs in the principal markets and for various types of outlets for use by the RMA members in connection with future merchandising problems. Mr. Ben Abrams of New York is director of the Distribution Costs Committee which recommended the survey.

The leading topic at the convention was the 1944 war radio-electronic production program which is estimated to be 50 percent greater than in 1943. President Galvin of RMA and other leaders of the industry predicted that the greatly increased war production program would require utmost indus-

try mobilization, with manpower difficulties a major bottleneck. These men said there appeared to be no prospect of any civilian radio production this year and the industry would probably be among the last to reconvert to production of peace-time goods.

Plans to meet the stepped-up war program, which approaches $5 billion in 1944, predominated at the Chicago gathering. New and expanded services for RMA members, including additions to the RMA headquarters staff in Washington, were authorized at the meeting and much new committee work was arranged. Cooperation with the various government agencies on the military program, as well as on the distant industry reconversion problems, also were planned.

Wiring Devices, Fuses, Given AA-2X Rating

Distributor's purchase orders for electrical wiring devices and electric fuses that bear preference ratings assigned on WPB form 547 (formerly PD-1X) must now be filled by manufacturers as though they were rated AA-2X, the War Production Board announced on February 9th. The effective date of the order was February 12, 1944.

Such purchase orders, regardless of their actual ratings, are now to be treated in manufacturer's delivery schedules as though they had been assigned AA-2X ratings when originally placed. However, the War Production Board announced that these orders may not be placed ahead of other purchase orders with AA-2X or better ratings placed before December 30, 1943.

This action was taken by the WPB in Direction 1 to L-161 (electric fuses) and to L-277 (electrical wiring devices).

These new directions were designed to re-rate purchase orders that had been assigned ratings before the change that was made recently in the level of ratings granted to distributors of fuses and wiring devices. Without such automatic re-rating, a great deal of paperwork would have been required in reprocessing the old purchase orders individually.

C. G. Logan Joins Engle Electric Co.

Mr. C. G. Logan, formerly office manager of the Miami, Fla., branch of the Westinghouse Electric & Supplies Co., has joined the Engle Electric Co. of Lakeland, Fla.

Wide Powers, Post-War Status Granted WPB Advisory Groups

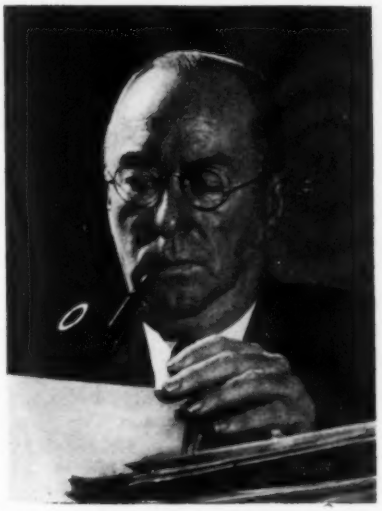
Donald Nelson signs order giving industry groups survey powers on all new orders and regulations, also protection from anti-trust prosecution by agreement with Attorney General

THE importance of the work of the WPB industry advisory committees now and in the period of reconversion to peace-time production and trade was greatly increased by the recent order signed by Donald Nelson, chairman of WPB. The administrative order, GAR-2-141, provides that no new limitation or conservation order, or amendment of an existing order which will result in a change in the rate of operation of an industry may be submitted for clearance without prior consultation with the proper advisory committee or committees.

The order is of particular importance to wholesalers because it will mean that no new orders or regulations concerning their business operation will be approved without consultation with either the Electrical Supplies Advisory Committee or the Household Electrical Appliance Industry Advisory Committee, depending on the products involved.

Included in the new order is a clear-cut statement of the protection afforded representatives of industry against anti-trust prosecution growing out of activities of these advisory groups. This protection is reported to be the result of an earlier agreement between the Attorney General of the United States and WPB's General Counsel.

The order includes a section on compensation and expenses which states that the "War Production Board will not pay any compensation to, or the expenses of, any committee member. Any expenses incurred by a person attending a meeting called by the War Production Board may not be imposed on or assumed by other members of the industry involved."



Donald M. Nelson

There are now more than 750 industry advisory committees working with the War Production Board.

Appliance Distributors Offered Special NEWA Membership Plan

Specialty wholesalers to be "special members," are planned as nucleus of new Electric Appliance Distributors Division. Moderate rates offered as inducement

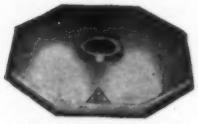
A SPECIAL plan for inviting and admitting membership of specialty wholesalers has been announced by the National Electrical Wholesalers Association. Wholesalers who distribute for resale all types of refrigerators, socket appliances, electric heating and cooking units, radios and phonographs, electric farm equipment, etc., are being made eligible for this special membership status.

NEWA announces that the dues for

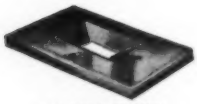
Save with ILLINOIS All Porcelain WIRING SYSTEMS....

★ USE LESS VITAL MATERIALS
★ DO JOBS IN LESS TIME
★ CUT MAINTENANCE

OUTLET BOXES AND COVERS



SWITCH BOXES AND COVERS



TOGGLE SWITCH PLATE

For the customer, porcelain protected wiring systems mean permanency of installation, economy, safety, dependable service where dampness and fire hazards are prevalent.

Illinois all porcelain wiring systems are adaptable to practically all wiring plans and layouts—they are easy to install and can be installed without grounding.

Porcelain is not a critical material—use it for your next installations.

★ SAVES VITAL MATERIALS
DO JOBS IN LESS TIME
CUT MAINTENANCE ★

Bull Dog
Look for this Trade Mark

STANDARD TUBES

STANDARD KNOBS

CLEATS

LAMP HOLDERS

ILLINOIS ELECTRIC PORCELAIN CO.
MACOMB, ILLINOIS

special members has been set at a very moderate level.

The association is putting effort behind the drive to get as many members as possible now before the 36th Annual Convention and 3rd War Conference is held at the Stevens Hotel, Chicago, April 19th to 22nd. Special meetings and special programs are being planned for these new members. Also at this annual meeting there will be the creation of a special Electrical Appliance Distributors Division, which will be assigned to deal with special problems peculiar to that branch of the electrical wholesaling industry. It is also planned that representation on the Executive Committee of NEWA will come from the Appliance Division as well.

Supple To Head Eaco, N. Orleans

Joseph M. Supple has been appointed vice-president and sales director of Eaco, Inc. (Electrical Appliance Company) of New Orleans, according to word from Lawrence Himel, president of the company.

Mr. Supple received his background in the electrical supplies and appliance wholesaling business "from the ground up," according to Mr. Himel. Supple has had experience in the shipping room, deliveries, telephone and counter sales, contacts, contract accounts, etc., and will continue to direct these departments as well as the sales promotion and advertising departments.

Mr. Supple served in the U. S. Army Air Force for a period of nine months, and was released a few months ago.

Eaco, Inc., has been serving the Southern Louisiana and Mississippi areas since 1903. Mr. Himel has been president for the past 13 years.

Wholesaler's Salesman Heads GE Radio Set Sales

Mr. R. L. Hanks, a former supplies and appliance salesman and later sales manager for the General Electric Supply Corporation, has been appointed sales manager of radio receivers for the General Electric Company's Electronics Department. He will be located in Bridgeport, Conn.

Mr. Hanks joined the GE Supply Corporation 16 years ago as a general salesman of supplies and appliances at the Dayton, Ohio, branch. In 1931 he was transferred to Cincinnati to be the home appliance specialist for the supply corporation. For the past 10 years he has been located in Hartford, Conn., serving as appliance sales manager in the district office.

Promotions At Wetmore-Savage

Ralph E. DeLoid, who for the past 12 years has been with the Wetmore-Savage division of the Westinghouse Electric Supply Co., Boston, has been appointed assistant district manager and district auditor. Bertram F. Moody, another veteran of 12 years' service with the company, has been appointed sales manager, appliance merchandise, and Carwin R. Savage, for 25 years with the company in the automotive and electrical appliance field, is now assistant sales manager of appliance merchandise. These men will be located at 88 Pearl St., Boston.

Wholesaler Receives Army Promotion

Lester M. Markel, formerly associated with the Markel Electric Products, Inc., Buffalo, N. Y., has been promoted from second to first lieutenant in the Army Engineers Corps at Minersville, Fla. His father, Samuel C. Markel, is vice-president of Markel Electric Products, Inc.

CHICAGO
EXPANSION NUTS

The Dependable Machine Screw Anchors

For machine screw or machine bolt anchors, it will pay you to specify Chicago Expansion Nuts. These dependable anchoring devices offer the following advantages:

1. **Quickly installed—a few hammer taps sets them.**
2. **Work can be easily dismantled.**
3. **No part of the anchor projects after removal from floor or wall.**
4. **Large stocks—IMMEDIATE DELIVERIES.**

Chicago Expansion Nuts have standard machine screw threads. Available in all sizes from No. 6 up to and including ¾". Setting tool free of charge.

IMMEDIATE DELIVERIES

Write for New Catalogs, Prices and Discounts

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SALES OPPORTUNITIES

BENDERS. Complete line of powerful hydraulic and hand benders for every bending job: pipe up to 4½"; rigid and thin-wall conduit; steel, brass and copper tubing; bus-bars.

CABLE PULLERS. Makes the tough job of cable pulling easy. Pulls cable into exposed or concealed conduit in half the time with old, cumbersome equipment. Easily carried, operated by one man.

JOIST BORERS. The convenient, work-saving way to bore holes in joists for knob-and-tube wiring and for conduit. Ball bearing operation. Easily assembled.

KNOCKOUT TOOLS. Greenlee Knockout Punches and Knockout Cutters save hours of work in cutting smooth accurate holes. Enlarge holes without drilling, reaming or filing.

RADIO CHASSIS PUNCHES. A special Greenlee tool for cutting holes in radio chassis for sockets, plugs and other receptacles. Cuts or enlarges holes in a jiffy. A big time saver for the radio worker.

PIPE PUSHERS. One man easily pushes pipe through ground by powerful hydraulic action. Eliminates extensive trenching, tearing up lawns and pavement in installing pipe.

When you talk about saving *time and material* you're talking your customers' language! And you needn't pull any punches when you talk about Greenlee Hydraulic Benders. Electrical contractors, plant engineers, maintenance men know the Greenlee as the outstanding leader in its field. In the words of one owner—Lyle Foster, Foster Electric Co., Peoria, Ill.—"Our Greenlee Hydraulic Bender saves us 15% in man hours and cuts material spoilage 25%." A Greenlee Bender produces smooth, accurate, uniform bends so much easier and faster that it pays for itself the first few times used in labor savings alone!

Right now you're calling on good prospects for nationally-advertised Greenlee equipment — benders and other Greenlee tools for contractor-industrial use. Are you getting your share of these sales? Better get the sales information at your finger tips now and check your opportunities with the Greenlee line. Write for your free copy of Catalog 33-E. Greenlee Tool Co., 1843 Columbia Ave., Rockford, Ill.

Get Ready with Greenlee!

REGISTERED TOOLS
GREENLEE
FOR THE CRAFTSMAN

No. 1184-M
RLM THREADED
DOME REFLECTOR

ADJUSTABLE PORCELAIN
ENAMELED FLOODLIGHT

QUAD
LIGHTING UNITS

RLM

★ The immensity — not to speak of the urgency—of war production, demands lighting installations that have been proved. QUAD Units are the selection of Contractors to aid in this important work.

★ The QUAD line of Industrial Lighting Fixtures—RLM and other porcelain enameled units—fills all high intensity requirements. The need for so many additional installations necessitated by the war program means that QUAD is the line to take care of any lighting need.

QUAD . . . for today and for tomorrow.

●

QUADRANGLE MFG. COMPANY
Mfgrs. of Incandescent and Fluorescent Lighting Equipment
32 SO. PEORIA ST. CHICAGO, ILL.

Revere Severs Mfg. and Jobber Ties

The Revere Electric Manufacturing Company and the Revere Electric Supply Company are no longer related, either through common management or stock ownership, according to announcement from both companies.

The principal stockholders and officers in both these companies for the past thirty years have been Van N. Marker and Fred R. Eiseman. Although they have been close personal friends as well as business associates and still retain the same deep confidence and friendship for each other, they have agreed that the interests of both corporations would be served best by a complete severence of all related interests between the two organizations.

Van. N. Marker

Fred R. Eiseman

Van N. Marker, as president of the manufacturing company, and owning no stock of the supply company, either

direct or indirect, will hereafter devote his full time and effort to the business of the manufacturing business.

Fred R. Eiseman, as president of the supply company, and owning no stock in the manufacturing company, either direct or indirect, will hereafter devote his full time and effort to the supply business.

Mersick Now Manages Los Angeles Concern

S. W. Mersick, formerly vice-president and sales manager of the Los Angeles Wholesale Electric Company, has been made manager of that company. Mr. F. C. Pentz is president, but as other interests are taking much of his time, Mr. Mersick is assuming full responsibility for the operation of the wholesale concern.

Zinsmeister Heads Pittsburgh Reflector

H. C. Zinsmeister has been elected to the position of president of the Pittsburgh Reflector Company, succeeding E. W. Simons, retired.

Mr. Zinsmeister joined the company in 1934, and served as auditor until 1940.

During the past twenty years he has been associated with the Sutton Engineering Company as consulting auditor. For ten years he was assistant secretary and treasurer of Epping Carpenter Pump Company. He is well known in the lighting industry and in accounting and banking circles throughout the Pittsburgh district.

New Appointments At American Steel & Wire

Bruce W. Bennet has been appointed assistant general manager of sales of the American Steel & Wire Company. In his new position Mr. Bennet will be in charge of the New York office of the company, succeeding Frederick Connell, who is retiring after 45 years' association with the company.

Mr. Bennet first started working for the company in 1909, as a salesman in the electrical and wire rope department of the New York sales office. For many years he was located in the Wilkes Barre territory as a salesman in the same department before becoming manager of sales in that territory in 1929.

Mr. E. C. Ostland has been appointed assistant chief industrial engineer of the company, with offices in Cleveland.

LATROBE

FLOOR BOXES — WIRING SPECIALTIES

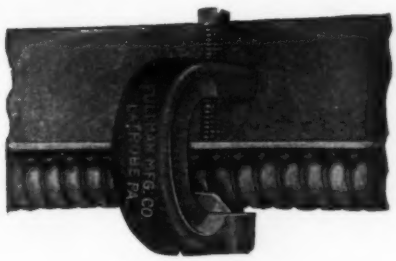
PRODUCTS

QUALITY THAT LASTS

Quicker installation of Latrobe Floor Boxes and wiring specialties saves valuable man hours in war production plants throughout the country—and once installed, they do a job to be proud of. Same is true for all industrial, commercial and residential uses.

"BULL DOG"
PIPE OR CONDUIT HANGER

Most economical and satisfactory for hanging ½, ¾ or 1" pipe or conduit to steel beams ⅜" thick. Adaptable also for a wide range of work.

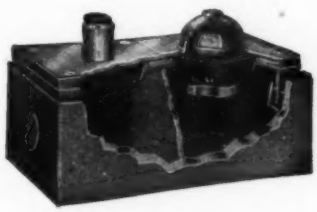


"BULL DOG"
ARMORED CABLE SUPPORT

A light, strong, sure clamp for supporting or hanging armored cable to steel framework. Easily installed. Will not deface surface nor shake loose.

No. 130
LATROBE WATERTIGHT FLOOR BOX

Shown here with No. 207 Bell Nozzle. Tapered Unit Receptacle fits tapered opening in adjusting ring.



No. 252-R FLOOR BOX With Nos. 206 and 207 NOZZLES

Brass flange frames are securely fastened to iron adjusting frames to prevent floors from chipping when cover plates are removed.

No. 403
INSULATOR SUPPORT

Malleable iron of high tensile strength for fastening porcelain or glass insulators to exposed steel framework. Four sizes.

EASILY INSTALLED

FULLMAN MANUFACTURING CO.
LATROBE, PA.

ECONOMICAL

LINEMEN ARE KLEINMEN
IN THE SERVICE AND OUT

Back home, one contribution we can make to speed Victory is the conservation of tools and equipment. To help in this important job, Klein has prepared an illustrated pocket manual on the care and correct use of tools to assure their long life. A copy will be sent to anyone interested.

Today Klein Pliers are winning new friends among men whose tough jobs make quality pliers a necessity. When they return to peace-time occupations, many thousands of men who are in the armed forces, or who are engaged in the manufacture of war material, will have the same high regard for Klein tools that good workmen everywhere have had for almost a century.

Meeting the demands of the Army, the Navy and essential industry is keeping the Klein plant busy, producing the tools so necessary to victory. No conversion or change will be needed to transform this production to peace-time needs as soon as the war is won. For Mathias Klein & Sons are today producing the tools they have always made—only more of them.

ASK YOUR SUPPLIER

Foreign Distributor:

International Standard Electric Corp., New York

Since 1857

Mathias KLEIN & Sons
Established 1857 — Chicago, Ill., U.S.A.
3200 BELMONT AVENUE, CHICAGO 18, ILLINOIS

Pacific NEWA To Meet In May

The War Conference of the Pacific Division of the National Electrical Wholesalers Association will be held at the Santa Barbara Biltmore Hotel at Santa Barbara, California, on May 22, 23 and 24, 1944, according to announcement from H. E. Perl, chairman, and R. A. Balzari, secretary of the Pacific Division.

The program that is being organized is designed to cover those industry subjects that are of vital importance in meeting and solving today's problems, as well as those that will confront electrical wholesalers in the immediate future, the program committee states. Several national figures are expected to be available to speak at the meeting. The national association will be represented by Charles G. Pyle, managing director of NEWA.

In announcing the War Conference, Mr. Perl and Mr. Balzari emphasized the importance of making plans far in advance because of the wartime problems. They suggested that train reservations be made thirty days in advance in order to be assured of accommodations.

Hotel reservations may be made now through the secretary of the association. The Biltmore Hotel has available fifty twin-bed rooms, ten double-bed rooms, and five single rooms. Two people are being required to occupy each double room. Other space will be available at the Montecito Inn and the Mar Monte Hotel, but as these hotels are quite far from the Biltmore, the committee is trying to keep such reservations at a minimum because of the local transportation problem.

Mr. Perl's advisory committee suggests that each member planning to attend give careful consideration at to whether he should bring his family with him considering the type of meeting, transportation and accommodation problems.

Personnel Changes At Wolverine Tube

Mr. G. H. Tobelman has joined the Wolverine Tube Division of Calumet & Hecla Consolidated Copper Company, Detroit, as manager of the eastern territory with offices in New York City.

Mr. Tobelman comes to Wolverine well fortified with experience in the tube industry, having spent a number of years in tube fabrication and later being instrumental in the early development and operation of the rocking process of the Tube Reducing Corporation. For the past 11 years he has

been connected with the Bridgeport Brass Co., where during the last few years he managed the sales of the eastern division.

In his new capacity, Mr. Tobelman will supervise the other eastern branches which have also recently undergone personnel changes. Mr. C. F. Rinaman, formerly in the New York area, will manage the Boston territory; Philadelphia will be under Mr. W. C. Gernhart, who was formerly in Detroit; Mr. F. R. Meier will cover Greater New York, and A. S. Kingerley will continue in New Jersey.

Fontaine to Head Graybar-Beaumont

John E. Fontaine has taken over the duties as manager at Graybar's Beaumont, Texas, office. He replaces Mr. J. P. O'Neill, who died recently after 27 years of continuous service with the company.

Mr. Fontaine, who joined Graybar-Dallas in 1928 as a warehouse clerk, had been a salesman serving the Fort Worth and Dallas territory until his recent appointment.

JACKSON
WEATHERPROOF
SOCKETS

No. 5200

No. 5201

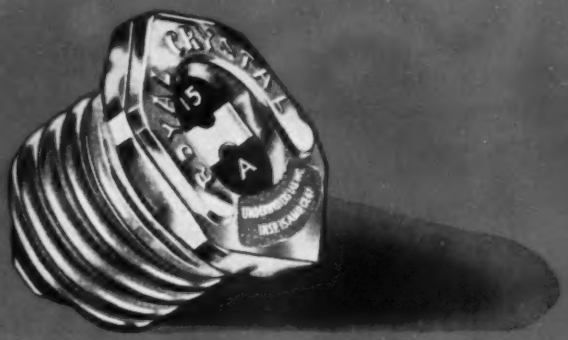
Tapped for ½" conduit. Will fit any fixture with 2¼" holder.

- READY FOR IMMEDIATE SHIPMENT
- Sold thru Electrical Wholesalers

Manufacturers of Industrial Lighting Equipment.

JACKSON
ELECTRICAL COMPANY
900 W. Van Buren Street
CHICAGO 7, ILLINOIS

ROYAL...



"engineered" for

DEPENDABILITY!

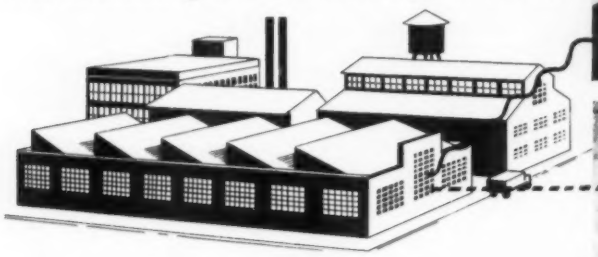
Remember ROYAL — a good name to "go buy"

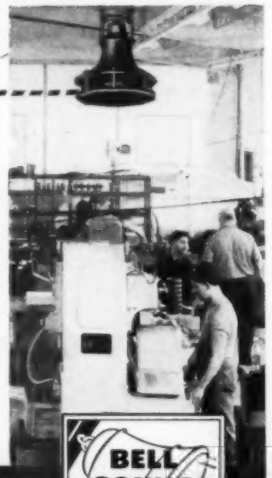
WIRE
PLUG FUSES
CARTRIDGE FUSES
CORD ASSEMBLIES
CHRISTMAS OUTFITS

ROYAL
ELECTRIC COMPANY, INC.
95 GRAND AVENUE • PAWTUCKET, R. I.

BELL Industrial Amplifying and Voice Paging System

BELL'S new dual-purpose sound system, *designed especially for industrial use,* provides for plant-wide broadcasting of announcements, instructions,



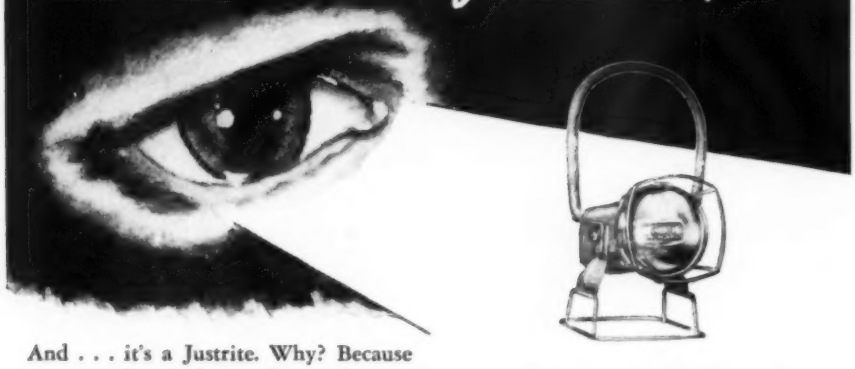


and recorded music as well as for paging of individuals by voice! Employees work better, faster, more accurately and cheerfully to music! Voice-paging saves time and steps, gets orders *straight* to the *right* party, cuts supervisory work, simplifies management, aids production! Standard units can be combined in any number, to fill requirements of any size. Write for details on the BELL Industrial Voice Paging System.

BELL SOUND SYSTEMS, INC.
1197 ESSEX AVE., COLUMBUS 3, OHIO
Export Office: 4900 Euclid Ave., Cleveland 3, Ohio

BELL SOUND SYSTEMS

It's the LIGHT of their eye!



And . . . it's a Justrite. Why? Because men serving industry know Justrite means greater profits, more sales and satisfied customers. These men know they can recommend a Justrite lantern for nearly every type of job . . . and it will do everything that is expected . . . these men know it pays to *talk* and *sell* . . . Justrite.

Twin-Bulb Electric Lanterns. Justrite Twin-Bulb Lanterns can be used safely wherever light is needed. Twin-Bulb feature guards against hazards of light failure. Powerful 634 candlepower forward beam plus light to sides *from same bulb.* Approved by Underwriters' Laboratories, Inc.

Remember . . . there's a Justrite for every industrial need. Write for catalog.

JUSTRITE MANUFACTURING COMPANY, 2063 N. Southport Ave., Dept. A-4, Chicago, Ill.

JUSTRITE *Safety Products*

SAFETY CANS · FILLING CANS · OILY WASTE CANS
APPROVED SAFETY ELECTRIC LANTERNS

Appointments at Triangle Conduit

W. J. Dwyer, who for the past three years has acted in the capacity of assistant sales manager for the Triangle Conduit and Cable Co., Inc., Trenton, N. J., has been appointed Sales Manager of the Company.

C. V. McKay joined the company on February 1st in the capacity of assistant to the president. For the past

C. V. McKay

20 months, Mr. McKay has been in Washington with the War Production Board as assistant chief, Wire Mill Branch, Copper Division.

Premier To Count On Post-War Distributors

Independent specialty appliance distributors are going to have a more prominent place in Premier's post-war distribution policy than ever before, according to a recent statement by R. B. Wilson, executive vice-president of the Electric Vacuum Cleaner Company.

"The far wider use of independent specialty appliance distributors will, be, in my opinion, the most important change in our post-war distribution policy," Mr. Wilson said. "Although we will maintain our own division offices, there will be no direct selling to the trade through these branches, except in those territories where properly qualified distributors are unobtainable for one reason or another."

Mr. Wilson stated that "In the immediate post-war period, demand at first will overwhelm supply, but when that unusual condition ceases to exist and real competition begins, the vital importance of good distributors becomes self-evident."

Third "E" Award To Edwards & Co.

In recognition of the high standards of production of war goods which the Edwards & Company, Norwalk, Conn., has maintained, a third Army-Navy "E" Award has been made to the company by the Navy Department.

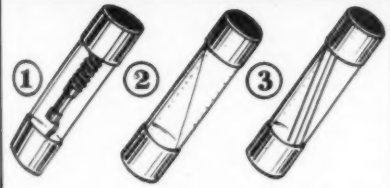
In connection with the award, Edwards & Company stated in an advertisement in a local newspaper:

"The citation from the Navy Department rightfully says of the Edwards Company that "they have continued to maintain the high standards of production set for themselves . . . they may well be proud of their achievement . . . the additional star on the flag is the symbol of appreciation from our Armed Forces for your continued and determined effort and support so necessary for victory."

Konselman Appointed

Charles B. Konselman has been appointed advertising manager of the Wickwire Spencer Steel Co., to succeed George L. Randall, who has recently entered military service.

UNDERWRITER'S APPROVED
LITTELFUSES



1. 1/100 to 3/8 amp. incl. Slo-Blo construction. High time lag, for surges and intermittent duty.
2. ½ to 3 amps., incl. Straight link type. Control to prevent oxidation.
3. 4 to 8 amps., incl. New sleeve type. Sleeve takes pressure shocks on short circuits, etc.

Approval to Littelfuses 0 to 8 amps., 250 V. greatly widens the market. In addition to delicate instruments, electric appliances, heavy duty power supplies, amplifiers, motors, radio, etc. Replace bulky cartridge and plug types. Catalog show fuses for all instruments and their circuits. Write

LITTELFUSE INC.
220 Ong St., El Monte, Calif.
4750 Ravenswood Ave., Chicago 40, Ill.

. . 1 head is better than 2!

For 25 seconds, the bombardier is both that and pilot. No time for two heads to get together. In those paltry moments, about half the time you need to read this, he must make a number of sighting adjustments. Speed, bomb fall, range, and drift must be precisely related to score "on the nose" hits. All, in 25 seconds. Who, then, will steer the ship?

★ Of this need, the Norden Automatic Pilot was born. Holding the plane level and true on its course, while lightning answers to knotty mathematical equations are "figured" by the electric computer, is the automatic pilot's job.

★ And number one among our jobs is the production and delivery of those automatic pilots and electric gyro motors for the Norden Bombsight System. We like to think that the five years we've been at it help make things easier for the bombardier . . . for the 25 seconds that count.

★ Do you want to get "on target" with any problem involving electric fans, motors, machine drives, hoists, cranes or Moyno pumps? If you do or need repair parts for R & M Fans—or want complete repair jobs done *for* you—get in touch with us, or the nearest R & M branch office listed below.

ROBBINS & MYERS INC.

SPRINGFIELD, OHIO • Branch Offices in:

NEW YORK, 200 Varick St. CHICAGO, 2400 W. Madison St. PHILADELPHIA, 401 N. Broad St.
KANSAS CITY, B. M. A. Bldg., Room 325, 215 Pershing Rd. SAN FRANCISCO, 237 Rialto Building
NEW ORLEANS, 116 Arlington Dr. DALLAS, 1100 Cadiz St.
THE ROBBINS & MYERS CO. OF CANADA, LTD., Brantford, Ont.

Industry is Going to Want More TRICO *FUSES Than Ever*

You can't go wrong when you supply fuses made by a responsible firm—noted for quality, service, and definite Jobber policy.

TRICO QUALITY—Over 25 years of experience in "knowing how" to build good fuses.

TRICO RESPONSIBILITY—Made by one of the largest and soundest manufacturing units in the fuse industry.

TRICO SERVICE—Always dependable—even under the most trying conditions.

TRICO POLICY—"Thru the Jobber"—protects your profits. Get complete details from your TRICO Representative, or write

THEY'RE "POWDER PACKED"

TRICO FUSE MFG. CO. Milwaukee Wisconsin FUSES

Drawn from the Statue of Hermes, by Praxiteles.

THE LATEST IDEA in true Hermetic Sealing is a Thordarson Development

"TRANSFORMER TERMINALS IN GLASS"

The above types are suitable for use anywhere in the world, regardless of climatic conditions.

THORDARSON

TRANSFORMER DIVISION
THORDARSON ELECTRIC MFG. CO.
500 WEST HURON STREET, CHICAGO, ILL.

Transformer Specialists Since 1895

ORIGINATORS OF TRU-FIDELITY AMPLIFIERS

Star Added To Ilg "E" Flag

The Ilg Electric Ventilating Company of Chicago has been honored with the renewal of its Army-Navy "E" Production Award. The presentation of a star to add to its flag was announced recently by Admiral C. C. Block, chairman of the Navy Board of Production Awards.

According to John M. Frank, president of Ilg, the eligibility standards for the renewal of the "E" award are even higher than those for the original citation. He said that a wide variety of factors are taken into consideration beyond the high peak of war production, including compliance with government regulations, accident rate in the plant, health of employees, absentee records, labor relations, delivery promises, fire hazards.

Sylvania Makes Plant Changes

Construction of additional plant facilities and the moving of another plant have been announced by Sylvania Electric Products Inc.

A new one-story brick building under construction at the Warren, Pa., plant is expected to add 20,000 square feet of office and manufacturing space. The new wing will provide the additional space needed to fill increasing war demands for wire processing and assembly work, the company stated.

At the same time, Sylvania announced the appointment of Arthur L. Chapman as manager of the Weld and Wire Products plant at Warren.

The industrial apparatus plant of Sylvania at Emporium, Pa., is being moved to the company's plant number 2 at Williamsport, Pa., where additional space and personnel are available. Present Emporium quarters are being taken over by units of the product development section of the main receiving tube plant.

For excelling in production of power and transmitter tubes, the Williamsport, Pa., plant of Sylvania Electric Products, Inc., was awarded the Army-Navy "E" award on Thursday, January 6. Mr. Walter E. Poor, president of Sylvania, accepted the award in behalf of the corporation and the employees. Maj. Gen. Roger B. Colton, chief of the Engineering and Technical Service of the Signal Corps, made the presentation.

"E" pins were presented to a representative committee which acted for the 1,028 employees. Comd. C. E. Leavitt, executive officer of the Naval Supply Depot, Fourth Naval District, with the assistance of Corporal James

Faux, of Johnstown, Pa., a wounded veteran of the African invasion, presented the pins to the employees.

Adds New Hampshire Plant

Sylvania Electric Products, Inc., has established an additional manufacturing unit at Dover, N. H., which will occupy about 250,000 sq.ft. of space in two mills formerly owned by the Pacific Mills and now owned by the city of Dover, it has been announced by the New Hampshire State Planning and Development Commission.

Correction

On page 37 of the December issue of WHOLESALER'S SALESMAN, in the article "The Distributor . . . During and After the War" by Herbert Metz, two typographical errors were inadvertently made.

In column 2, the sentence "Some of those wholesale distributors have been better than others . . ." should have read "Some of those years were better than others . . .". In column 3, of the same page ". . . the wholesaling industry is not only static . . ." should have read " . . . the wholesaling industry is not only not static . . . "

WHOLESALER'S SALESMAN regrets that through an error in editing this correction became necessary.

FASTENINGS
Safer • Quicker

IN HOLLOW MATERIAL
With
PAINE
TOGGLE BOLTS
AND
TOGGLE BOLT CLAMP

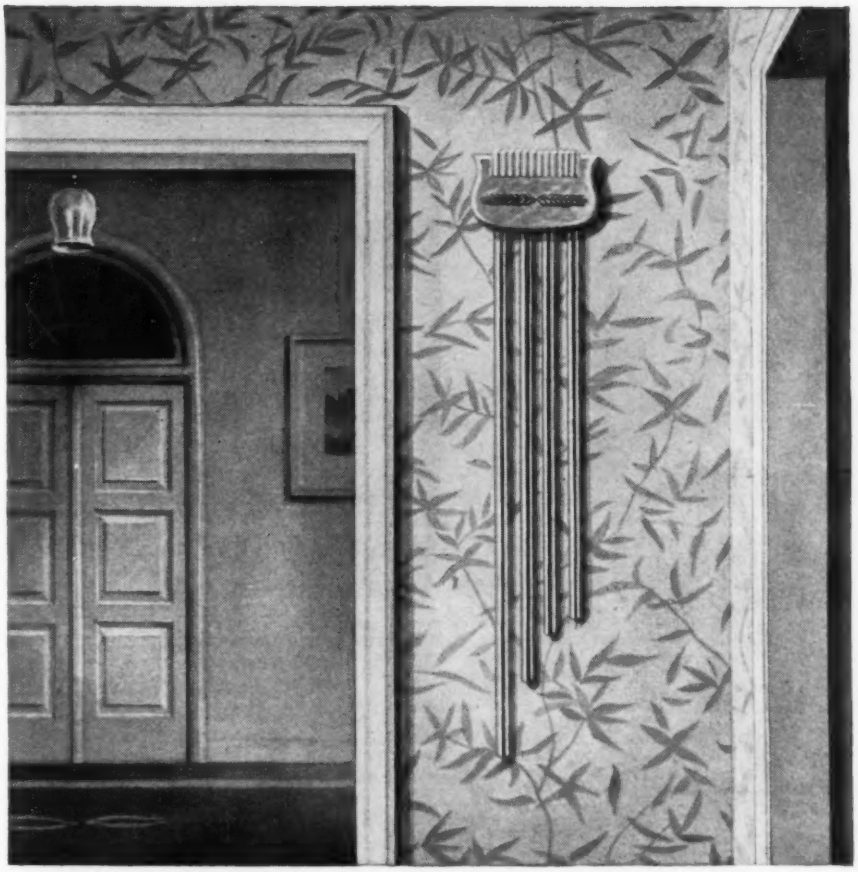
Clamp Cuts Installation Time in Half and Saves the Fingers.

FREE
WITH EVERY
BOX OF PAINE TOGGLE BOLTS

Complete Catalog Mailed Upon Request

THE PAINE CO.
2952 Carroll Ave. Chicago 12, Ill.
Offices in Principal Cities

PAINE
FASTENING and HANGING DEVICES



There'll be someone at your door

ONE DAY soon . . . and very soon we hope . . . there'll be many people at the door of every distributor, contractor, department store, hardware and appliance shop . . . keenly enthusiastic buyers of Rittenhouse Door Chimes.

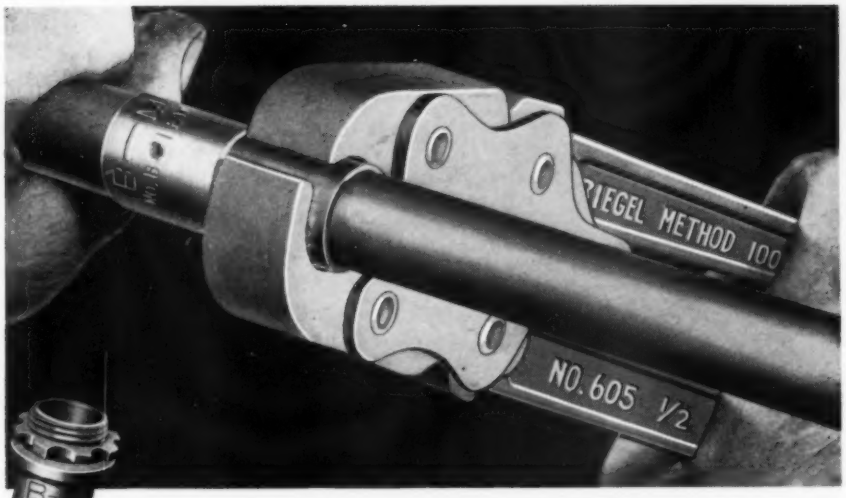
They'll remember Rittenhouse because of its consistent and effective promotional work through national advertising. And they'll remember Rittenhouse Door Chimes as a quality product backed by down-to-earth merchandise planning, and engineering foresight.

This same foresight is existent today. Post-war possibilities and plans are being prepared on the drafting tables, in the research laboratories, in sales meetings.

Look ahead with us—plan with us, share with us in this extensive post-war market. 'Till the day when these customers will be at your door—and Rittenhouse Chimes will again be at the door of American homes.

THE A. E. RITTENHOUSE COMPANY, INC.
Honeoye Falls, New York

Rittenhouse
DOOR CHIMES



E·M·T CONNECTIONS IN A FEW SECONDS!
With B. M. Fittings

TWO QUICK SQUEEZES give you Finer, Faster Conduit Connections. B-M Fittings do away with the twisting, turning and tightening of nuts and save you valuable time and materials. Then too, they are stronger, neater and much easier to work with in tight places. Start using B-M Fittings today. Have more satisfied customers—more profits from each job!

(All B-M Fittings carry the Underwriters Seal of Approval)

DISTRIBUTED BY

The M. B. Austin Co., Chicago, Ill.
Clayton Mark & Co., Evanston, Ill.
Clifton Conduit Co., Jersey Cy., N. J.
Gen. Electric Co., Bridgeport, Conn.
The Steelduct Co., Youngstown, Ohio
Enameled Metals, Pittsburgh, Penn.
National Enameling & Mfg. Co., Pittsburgh, Pa.
Triangle Conduit & Cable Co., New Brunswick, N. J.

Prompt Deliveries on Properly Rated Orders

BM SYSTEM **BRIEGEL METHOD TOOL CO. • Galva, Ill.**

Join the TALK-A-PHONE *Jobber Family* NOW

1. MAKE MONEY TODAY
2. BIG POST WAR OPPORTUNITY
3. EFFECTIVE SELLING HELPS

Here's why Talk-A-Phone is the ideal inter-communication line for jobbers:

1. Talk-A-Phone offers America's most complete line of inter-communication . . . A unit to fit every need . . . to fit every condition . . . Super Chief, Chief, Deluxe and Standard models.
2. Scientifically designed, on fundamentally sound principles. Manufactured by craftsmen of unusual skill. Rigidly inspected.
3. Modern, inviting appearance. They please the most fastidious executives.
4. An extraordinary value for the price. Acknowledged to offer "most for the money". Sales resistance is low.
5. Talk-A-Phone follows a rigid policy of Jobber Protection.
6. You can get delivery now.

Write for colorful new catalog and reference book.

TALK-A-PHONE MFG. CO.
1211 West Van Buren Street
Chicago, Illinois, U. S. A.

Talk-A-Phone

Treasury Clarifies Salesmen's Pay

The new salary stabilization policy of the Treasury Department concerning the payment of commissions, bonuses and other percentage-type compensation for 1943, 1944 and subsequent years was clarified in a January 20th release from that department of the Government. Several points of interest to wholesalers are quoted below:

"Since most 1943 payments already have been made, Commissioner Hannegan advised employers they may make supplementary payments to adjust 1943 payments to the new policy.

"The new policy permits employers to pay—without the formality of obtaining approval—any percentage-type compensation earned by employees under a contract or established policy of the employer, provided no change has been made in the percentage, method of compensation, or the employee's base salary (if any) since the beginning of the salary stabilization program (Oct. 3, 1942, in the case of salaries over $5,000 per year; Oct. 27, 1942, in the case of salaries under $5,000 which are under the Commissioner's jurisdiction).

"These percentage types of compensation include commissions, bonuses and similar types of payments which are based on a percentage of sales, salary, profits, volume, new business or similar factors.

"Under the above conditions, the new policy permits payment of the percentages without regard to the dollar amount. The new policy rescinds former provisions which limited the dollar amounts to the level of 1941-42.

Commissioner Hannegan explained that the effect of the new policy on 1943 payments is as follows:

"1. *Salesmen earning commissions based on their own individual sales*—as a practical matter, the new policy makes no change in the compensation status of these employees since the former dollar limit rule was suspended in these cases. However, these employees will now be reassured that the dollar limit has been formally revoked, as to employees whose rate of commission, and base salary has not been changed.

"2. *Executives, branch managers and others earning over-riding commissions or percentage bonuses*—employers are authorized to adjust any 1943 payments in accord with the new policy. For example, if an employee in 1943 was entitled by contract or established policy to receive a percentage bonus amounting to $1,000 but was paid only $900 because of the former regulations, he may now be paid the remaining $100 without formal approval, provided that no change has been made in the percentage, method of computation, or base salary. If the

Full Production with COOL FUSES

WARE HI-LAG

NON-HEATING CONTACTS
Keep Motors Humming

100% Quality
APPROVED BY UNDERWRITERS
Mfgr's. Agents Territory Open
WARE BROTHERS
4420 W. Lake St. Chicago, Ill.

WARE
Renewable
HI-LAG FUSES

percentage, method of computation or base salary has changed and the employer believes an adjustment is warranted, he may apply for a ruling to the field office of the Salary Stabilization Unit of the Bureau of Internal Revenue, in the region in which the employer has his principal place of business."

Association News

CHICAGO—The Illinois Radio and Appliance Dealers Association was reorganized at a meeting attended by some 200 appliance dealers from the Chicago area and held at the Hotel Stevens recently. The Association had been dormant for the past two years, and now intends to resume full activities in anticipation of the expected start of appliance production.

DETROIT—The Electric Association of Detroit recently announced its new 1944 officers—A. A. Togesen, president; Dale Douglass, vice presiden; E. B. Anderson, secretary; C. C. Munroe, treasurer; and C. G. Odell, executive secretary.

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Electrical Connectors

WHY SO DEPENDABLE?

Because made from maximum conductivity seamless copper tubing drawn in our own plant.

Ilsco Approved Single Hole Soldering Lugs

Wire sizes stamped on barrel of each lug; simplifies selection of the right lug for any size conductor; tongues have smooth, flat surfaces, free from burrs; barrel ends cut off straight to fit snugly against wire insulation; shipped brightly clean to speed soldering.

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BIG NEWS
for Time Switch Users

Short term shipments now being made on Paragon 300 series . . . A top quality time switch for only $13.00 list. AA-5 rating or better required.

Has a fine record of success in wide variety of applications, e.g. for controlling motors, valves, pumps, blowers, oil burners, stokers, attic fans, commercial lights, signs, etc. Some outstanding features of the 300 series are: only 2 exposed gears, all others operate in a sealed oil-filled chamber; slow speed motor, sturdy clock train, snap-action switch; simple hand trip; attractive modern case; 2000% more dial power than required. Satisfactory service, workmanship and material guaranteed. Send for complete bulletin.

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BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1905

SWEET'S FILES

for 1944 carry the story of

VERD-A-RAY

TECHNICAL DATA AND PRICE INFORMATION SHOULD BE IN YOUR FILES —ASK FOR IT—TODAY

A list of users in industry would look like "who's who" in war materiel production. Where glare exists, this new lamp is now accepted as a necessity. Try it. Technical data and sample will be sent without obligation to you.

VERD-A-RAY

REPLACES ORDINARY LAMP BULBS

Electrical distributors now selling lamps are invited to write us. Testimony of industrial users adequately supported by qualified scientific research assures turnover. Lamp contract renewals are simplified if you are "in". Sell Verd-A-Ray. It's "V" Day Incandescent Lighting - Here NOW.

•

SAVE ELECTRIC CORP.
TOLEDO 5, OHIO

March 17 is the date set for the Association's big Minstrel Show to be held at the Detroit Edison Building. Rehearsals are now in progress with Ben Howard directing the production.

The Association also reports that its membership now totals more than 500.

KANSAS CITY—There were fifty-seven members and eight visitors in attendance at the January 25 meeting of the Electric Association of Kansas City. They heard R. C. Walker, president of Aircraft Accessories Corp., deliver an interesting talk on Kansas City's possibilities in the post-war world.

Mr. Elmer F. Pierson, president of the Vendo Company, addressed the Association at a recent meeting on the subject "Research—Its Place in Post-War Planning for Small Industries." Mr. Pierson, a well known Kansas Citian, has been very active in Civic affairs and is a real estate man who has become an outstanding industrialist of Kansas City.

MILWAUKEE—The Wisconsin Radio Refrigeration & Appliance Association urged all its members to attend the all-electric industry meeting staged by the Wisconsin Electric Power Company in the auditorium of the Public Service Building. The top-notch speaker of the evening was Ralph W. Carvey, vice president and sales manager of the Coleman Lamp & Stove Company, Wichita, Kansas, who has acquired a national reputation as a business speaker. The program included a skit on post-war and movies and ended with the usual fine refreshments.

In accordance with the conclusion reached at the general meeting on post-war planning last November, provid-

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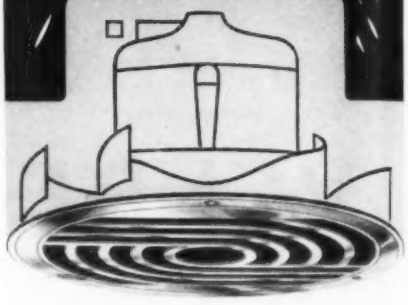
MOUNT VERNON, NEW YORK

GET SET *now!* quick breaking sales ahead



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Blo-Fan

"SPOT VENTILATION"

Wise jobbers are planning NOW how they will replace war-time industrial volume with civilian business after "V" day.

Then, residential building is expected to break all records, so new opportunities for sizeable volume will be offered by "BLO-FAN"—a combination fan and blower SPOT ventilator for kitchens, bathrooms, game-rooms, etc. It, too, was breaking all records before the war; it is sure to do so again afterwards.

Write us to keep you posted on our new postwar plans as they develop.

BUY U.S. WAR BONDS *Now!*

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1245 E. 33rd ST. LOS ANGELES
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Dependable!

Whatever the need—heavy industrial work or extremely light, delicate work—there's a HEXACON electric soldering iron to meet the particular requirements. Included are units for fast production or for service or maintenance use. Screw tip irons, plug tip irons and irons with replaceable and hermetically-sealed elements are available in this complete and diversified line. The performance of HEXACON irons is attested to, by their wide adaptation in Army, Navy and Air Corps applications. Each HEXACON unit is subjected to an insulation breakdown test of twice the intensity required by the Underwriters' Laboratories.

WRITE FOR LITERATURE

Descriptive bulletins, describing the complete line of HEXACON electric soldering irons, will be sent on request.

HEXACON ELECTRIC COMPANY

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ing for subsequent separate meetings of distributors and retail dealers, the distributors of appliances in the Milwaukee area will get together to discuss post-war problems from their viewpoint at a dinner meeting at the Milwaukee Athletic Club to be held sometime in the near future. Shortly thereafter, a meeting of the retail dealers will be called. When the two groups have set up some definite recommendations and policies from their respective viewpoints, an effort will be made to bring the two programs together and coordinate them into a single post-war program for the industry in Milwaukee.

NEW ORLEANS—At a recent luncheon meeting of the Executive Committee of the Electrical Association of New Orleans, it was decided that the next dinner meeting was to be under the direction of Vice President O. P. McCord of the Wholesalers, Utilities & Manufacturers Division. It was suggested for the next meeting to have, if possible, a speaker on the subject of "Electronics" and "What We Can Expect on Post-War Markets."

PASSAIC COUNTY, N. J.—The Passaic County Electrical League held its February meeting at the Public Service Electric & Gas Company in Paterson, N. J. Charles McKew Parr addressed the association on the subject of "Politics and the Business Man."

Mr. McKew Parr is chairman of the Committee on Public Information in the General Assembly of Connecticut and is Chairman of the Board and Treasurer of the Parr Electric Co., in Newark, N. J.

A word or two about future meetings—At the March meeting, the Association will have a joint meeting with the Passaic County Chapter of the American Institute of Banking and at the April meeting, the Association's guests will be the New Jersey Council of Electrical Leagues at Passaic City Club.

"E" Awards

Among the industrial plants which recently have been awarded the Army-Navy "E" award for outstanding industrial production for the war effort was the Square D Company, Kollsman Instrument Division, Jewel Bearing plant, Suffern, N. Y.

P&S

Wiring Devices

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NEW INSTALLATIONS

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Precision Made for Dependable Performance

Sold Thru Wholesalers

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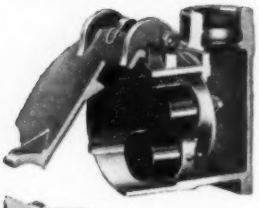

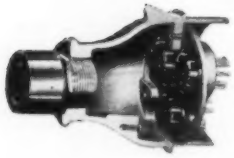

3 unit sectional view.

1, 2, 3, 4, 6, 8 pole interchangeable contact units.

Any combination, 2 to 32 poles, for thermo-couples, sound equipment, remote controls, lighting and motor wiring. Interchangeable contact units—1 to 8 poles—can be assembled in 2, 3, or 4 unit plug shells and receptacle housings to make any desired combination of circuits. Equipment can be arranged with the protected female contact units in either plug or receptacle, for safety in line side of the circuit. Ground protection is provided. A full line of plug shells, cable connectors, and standard receptacles allows the widest range of assembly combinations, to meet any needs. Write for general catalog 1100 giving complete specifications.

THE PYLE-NATIONAL COMPANY
1352 N. Kostner Avenue, Chicago 51, Illinois

MORE FACTS ON PRODUCTS

Electronic Tubes—A new quick-selection chart of electronic tubes for industry is contained in a four-page bulletin (ET-12) published by the General Electric Company's Tube Division located in Schenectady, New York, for distribution by mail to customers.

When writing mention WHOLESALER'S SALESMAN

Fluorescent Fixtures—Bulletin No. 43-H, published by the Martin-Gibson Co., Detroit, Michigan, lists features of the company's fluorescent luminaires, illustrates four methods of installation with diagrams and photographs, contains data on fixture maintenance.

When writing mention WHOLESALER'S SALESMAN

Framing Sections and Fittings—The Unistrut Corporation, Wayne, Michigan, has recently issued a general bulletin on the uses of Unistrut framing sections, nuts and fittings. Printed in colors and containing many halftone illustrations of the company's product and actual illustrations.

When writing mention WHOLESALER'S SALESMAN

Intercommunicating Systems—Catalog 1944, an eight-page catalog, includes illustrations, diagrams and detailed descriptions of the Standard, DeLuxe, Chief and SuperChief intercommunicating systems as manufactured by the Talk-A-Phone Manufacturing Company of Chicago, Illinois.

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WATCH THIS SPOT GROW

Start your customers out RIGHT on a "diet" of Allen Soders and fluxes or all their sodering requirements and watch your soder and flux business grow.

We will cooperate in submitting samples (out of our 230 formulas) of SPECIAL SODERS & FLUXES FOR EVERY SODERING JOB.

You'll find it pays to "get behind the Allen Spot"

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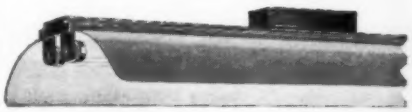
HOLDENLINE PIONEERS IN FLUORESCENT FOR INDUSTRY

Just issued—a new Catalog that is sure to be mighty valuable to anyone interested in fluorescent for industry. Shows exactly what you need for good general illumination—any area.

INDIVIDUAL UNITS
and New
CHAN'L-RUN
Continuous Wireway



Everything you need for general illumination by the foot, yard, or mile—single units or rows.

The HOLDENLINE name on a lighting fixture stands for research plus experience and know how—a dependable product.

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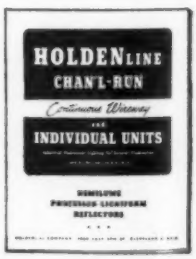
NEW CATALOG T44

Shows full details of fixtures and accessories—with all necessary information. Write for it.



We sell exclusively through wholesalers

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1960 EAST 57TH ST.
CLEVELAND 3, OHIO

Electrical Equipment for Pipe Thawing—A four page bulletin GEA-2059C has been published by the General Electric Company, Schenectady, N. Y., describing with illustrations and diagrams three different classes of electric equipment that may be used for the safe, quick, and efficient thawing of frozen pipes.

When writing mention WHOLESALER'S SALESMAN

Transformers—A new sixteen-page bulletin, S-202, describes dry type transformers for indoor or outdoor service, built in sizes from 5 watts to 1,000 kva with either Class A or Class B insulation, manufactured by the Standard Transformer Company of Warren, Ohio.

When writing mention WHOLESALER'S SALESMAN

Testing Equipment—Bulletin No. 102, a four-page folder, issued by the Superior Instruments Co., New York City, includes illustrations, specifications and special features of the company's model 700 Volt-Ohm-Milliammeter, model 560 Industrial Analyzer and model 610-B Meg-O-Meter.

When writing mention WHOLESALER'S SALESMAN

Fluorescent Accessories—A new 16-page catalog entitled "How to Use Fluorescent Accessories for Best Lighting Results" has been published by the Appliance and Merchandise Dept. of the General Electric Co., Bridgeport, Conn. The booklet points out that "proper functioning of a fluorescent lamp depends largely on three auxiliary devices—the lampholder, the starter and the ballast."

When writing mention WHOLESALER'S SALESMAN

And They'll Want One At Home, Too

Now, Double-purpose Thermador Fan-Type Portable Electric Heaters are providing comfort and convenience in the Army, the Navy and war plants throughout the country.

When Victory is Won, Thermador Heaters will heat cool corners, cool warm areas, dry clothes and hair in the homes of America.

Aggressive dealers are featuring flameless, fumeless Thermador Heaters now to improve working conditions in war plants. Available on priority orders in portable or built-in types for use on 115-volt A. C. service, 1650 watts capacity —or 230-volt A. C. in capacities up to 5000 watts.

Thermador also manufactures built-in Electric Heaters, Electric Ranges, Electric Water Heaters, and Radio Transformers.

Write today for Catalog WS-6.

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ELECTRICAL MFG. COMPANY
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Seven Leagues Ahead

NALCO

Infra-Red Ray
LAMPS
For Radiant Energy —Baking And Drying

Meet industry's demands for radiant energy-heating and drying by featuring Nalco Dritherm Carbon Filament Lamps. Available in Inside-Silvered finish (no reflectors required) or in Clear Glass style.

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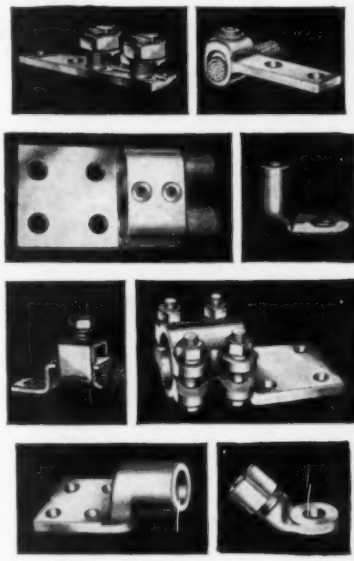
"To get the **RIGHT** lug at every point—

—select your terminals from the **COMPLETE** line"

Look in the Penn-Union Catalog —all of the good types: Solderless lugs to grip the conductor by Bolt, Screw, Post-and-Nut, or Multi-Slit Tapered Sleeve . . . Soldering lugs, Cast and Stamped, in wide variety . . . Here are just a few:



You will also find the most complete line of Cable Taps, Tee Connectors . . . Straight, Parallel, Elbow and Cross Connectors . . . Bus Supports, Clamps, Spacers . . . Grounding Clamps, Service Connectors.

Penn-Union fittings are preferred because every one is mechanically and electrically *dependable.* They are the first choice of leading utilities, industrials, electrical manufacturers, contractors. *Write for the Penn-Union Catalog.*

PENN-UNION ELECTRIC CORPORATION
ERIE, PA. *Sold by Leading Jobbers*

PENN-UNION
Conductor Fittings

Big Beam CATALOG

will be ready for distribution SOON . . .

. . . in fact we hope to be able to distribute it at the Wholesalers' Convention and also to greet our many friends there. We have prepared this very interesting and comprehensive catalog on BIG BEAM Portable Electric Rechargeable Hand Searchlights and Accessories to give you important details and facts that will help you do a good selling job.

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A *Preview* OF CONTENTS

Descriptions and Specifications on

- No. 700 2000-foot-beam Dry Cell Battery Portable Searchlight
- No. 700 EH Portable Electric Hand Searchlight
- No. 411 Portable Electric Rechargeable Hand Searchlight
- New Streamlined No. 1000 all-purpose Electric Hand Searchlight
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- Method of recharging
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- Accessories
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U-C LITE MFG. CO.
11 EAST HUBBARD STREET
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It Always Pays to Recommend *the* *Sherman Lug* *with the* CLOSED ROUND END

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for catalog bulletin giving full specifications.

No chance for solder to leak out the end of these lugs, because the end is *completely closed* — an exclusive Sherman feature. These lugs are made on special Sherman machinery, from pure electrolytic copper, rated at 100% conductivity. Contact surfaces are flat. No burrs or sharp edges. Bright and clean, inside and out, for easy soldering. All lugs individually inspected. Today's finest lug—at money saving prices.

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Experienced in marketing electrical material or equipment through jobbers, and with knowledge of contractors, engineers and architects. Personally familiar with principal distributing areas of the country. Desirous of making new connection with manufacturer having good post-war possibilities. Ability to work with other people, and to produce results from men in the field. Complete information about experience and qualifications will be given.

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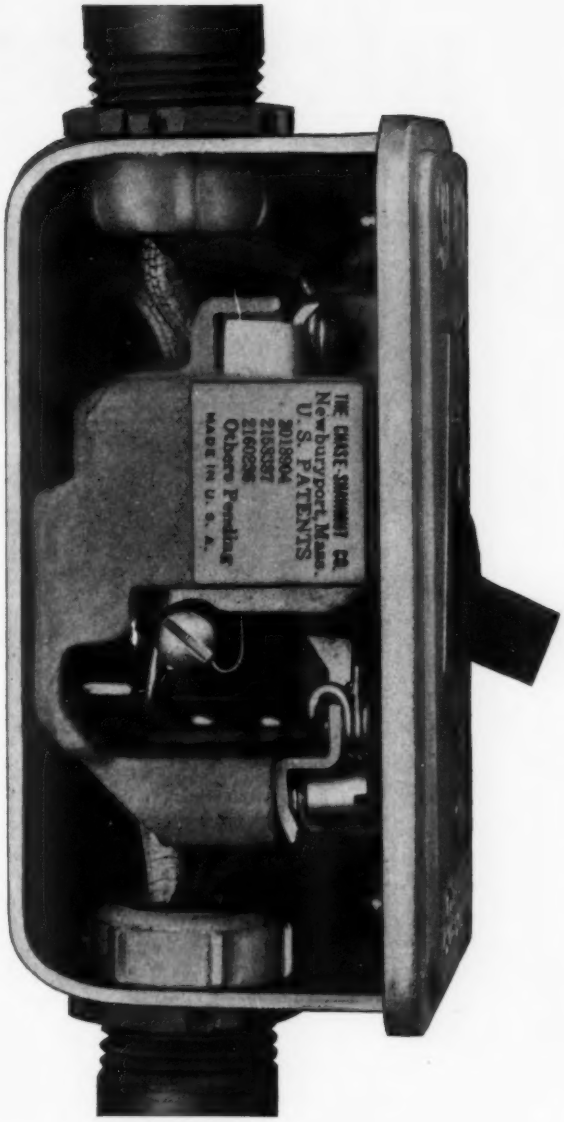

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is only one of the many practical features of the SHAWMUT Type-B MOTOR SWITCH that recommend it to its thousands of users. Designed for the future in the present, like all SHAWMUT equipment, it is simple and sturdy, and of long electrical and mechanical life. It is convenient, compact, positive in operation, and easy to install. It serves a hundred uses in connection with apparatus driven by fractional horse-power motors. For full information, ask for our Bulletin 406.

The Chase-Shawmut Company
Newburyport, Massachusetts

GENERAL ELECTRIC RESEARCH

Behind the scenes in G-E's Lamp Development Laboratory. Here engineers perform two of the many tests given General Electric's new lamp for instant-starting. At the left a cathode ray oscillograph test is in process, while the other engineer takes a reading on an automatic timing device that turns the lamp off and on more than 1400 times a day—to insure a high degree of dependability.

GENERAL ELECTRIC

DEVELOPS FLUORESCENT LAMP for INSTANT-STARTING!

New General Electric 40-watt Fluorescent Lamp Starts Instantly and Positively

Here is fluorescent lighting—at the flick of a switch! A fluorescent lamp that starts as instantaneously as an incandescent lamp!

General Electric soon will make available a 40-watt white G-E Mazda fluorescent lamp for operation with instant-starting ballasts. Shipments in limited quantities will start May 1st. New General Electric instant-starting ballasts will be made available at the same time by G-E's Transformer Section in Ft. Wayne.

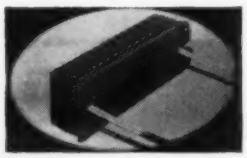
Instant-starting can be obtained with regular fluorescent lamps when used with an instant-starting ballast, but only at the cost of a substantial reduction in lamp life. The new 40-watt G-E fluorescent lamp operates on instant-starting ballasts *without sacrifice of rated lamp life.* It will sell for the same price as regular 40-watt G-E Mazda fluorescent lamps.

The new lamp, operating with a high voltage instant-starting ballast, eliminates the need for conventional starters. However, under abnormal operating conditions, such as high humidity, special provision may be needed to assure starting.

Another Example of G-E Leadership in Lighting

The development of the new fluorescent lamp for instant-starting is just one more example of the never-ending lighting progress led by General Electric lamp research. Through this research is assured the uniform quality and dependability that are characteristic of the complete line of General Electric Mazda lamps.

G-E High Voltage Ballast for Instant-Starting



Latest development in the G-E Specialty Transformer laboratories at Fort Wayne is the new type ballast for use with instant-starting fluorescent lamps. Available in limited quantities about May 1st in four voltages with end out or base out leads. Rated life of the new fluorescent lamps when used with these ballasts is the same as that of regular G-E Mazda F lamps using the conventional switch and starter.

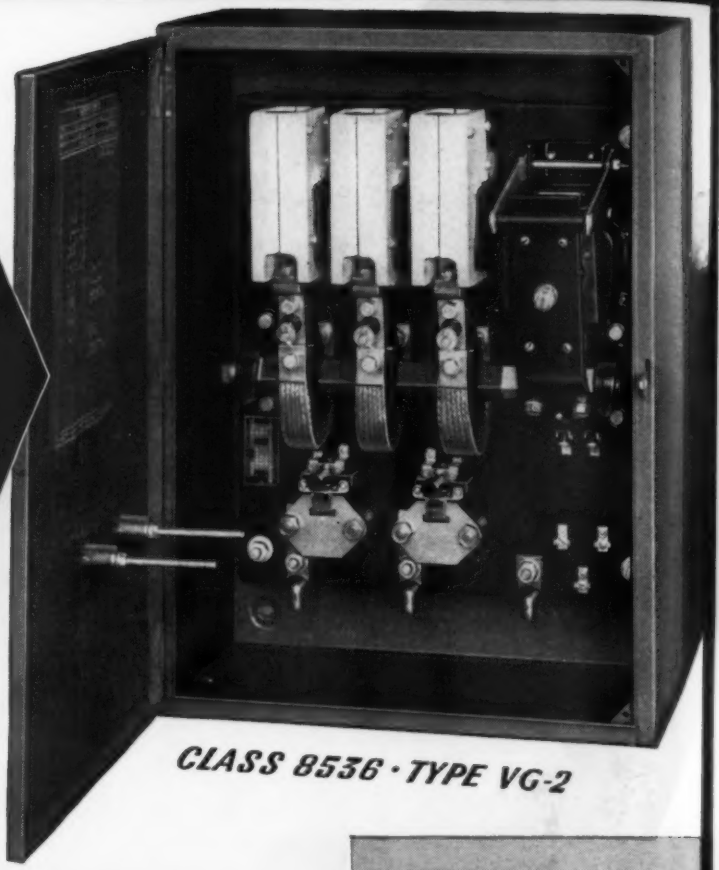
Hear the General Electric radio programs: "The G-E All-Girl Orchestra," Sunday 10 p. m. EWT, NBC; "The World Today" news, every weekday 6:45 p. m. EWT, CBS.

THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE
—BUY WAR BONDS

"TO MAKE LAMPS STAY BRIGHTER LONGER"
The Creed of G-E RESEARCH

G-E MAZDA LAMPS

AN *Improved* SIZE 4 STARTER WITH FIVE NEW FEATURES



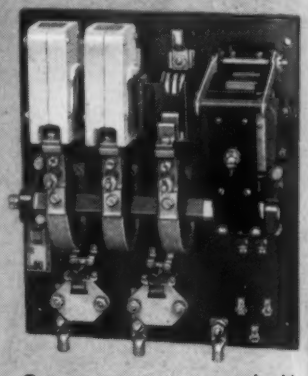
CLASS 8536 · TYPE VG-2

----SMALLER-QUIETER----

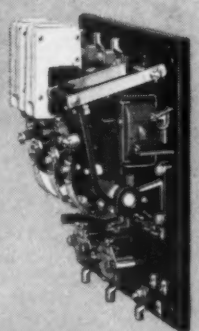
1. Improved blow-out coils have fewer turns and are wound with heavier copper—assuring less heating effect, and efficient interruption of stalled rotor currents for electric motors up to 100 horsepower.
2. New and larger magnet of modified **"E"** type construction gives added efficiency.
3. Self-aligning, floating armature eliminates vibration noise—reduces heating and magnet wear.
4. New shading coil affords exceptional mechanical strength. This coil is held in place by the magnet coil in such a manner as to prevent its falling out. Use of heavy brass ribbon makes shading coil virtually unbreakable.
5. Narrower panel saves space and flat door cabinet permits gang mounting.

• • •

This greatly improved Type V device is available in a complete range of enclosures for all Size 4 starter applications, including reversing, combination, multi-speed, reduced voltage, etc. Call in or write your nearest Square D Field Engineer for complete information.



Open type starter panel with one arc chute removed to reveal contacts and blowout coil.



Side view of panel shows "E" type magnet, floating armature and new shading coil.

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